4 AIRSIDE AND LANDSIDE INVENTORY

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CHAPTER FOUR

INVENTORY

This chapter details the physical environment of Idaho Falls Regional Airport (IDA). All major airport components, structures, and pavements on are documented. It also includes a detailed wind analysis using data recorded on the airport.

4.1. Natural and Physical Environment

4.1.1. Geology, Topography, and Soils

Idaho Falls Regional Airport is located within the city of Idaho Falls and is situated less than 1,000 feet from the western bank of the upper Snake River. It is also within the eastern section of the Snake River Plain which is a large and wide depression that extends east to west across southern Idaho. The elevation within the eastern Snake River Plain ranges from approximately 2,900 feet to over 6,000 above sea level.[1] The Upper Snake River Plain is nearly level and contains pastureland, cities, suburbs, industries, and cropland where extensive surface irrigation occurs.[2] Beneath the eastern Snake River Plain is a sole source, basalt aquifer that provides drinking water for approximately 200,000 people in southeastern and south-central Idaho. It is the largest basalt aquifer in Idaho, and it discharges nearly 2.6 trillion gallons of water into the Snake River annually which makes it one of the most productive aquifers in the United States.[3] The geology of the airport is primarily basalt, or lava rock, with the eastern and northern edges of the airport property

consisting of alluvium, or sediment from the Snake River.[4] Airport field elevation is reported by the Federal Aviation Administration (FAA) as 4,743.7 feet above mean sea level. As shown in Figure 4.1, a topographic survey of the airport shows the elevation at the airport varies between 4,720 and 4,750 feet above sea level.

The United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) provides an online web soil survey tool to research soil types and attribute data for a selected area of interest.[5] Table 4.1 lists the soil types shown in the web soil survey for the airport (Figure 4.2).

Table 4.1: Soil Types Located at Idaho Falls Regional Airport

Map Unit	Soil Type	Acres	Percent of Area
7	Bock loam	0.3	0%
20	Packham gravelly loam	21.4	3%
22	Pancheri silt loam, 0–2% slopes	406.5	57.1%
23	Pancheri silt loam, 2–4% slopes	242.5	34.1%
24	Pancheri silt loam, 4–8% slopes	30	4.2%
33	Polatis-rock outcrop complex, 2–25% slopes	3.8	0.5%
47	Stan sandy loam	6.9	1%

Source: USDA NRCS

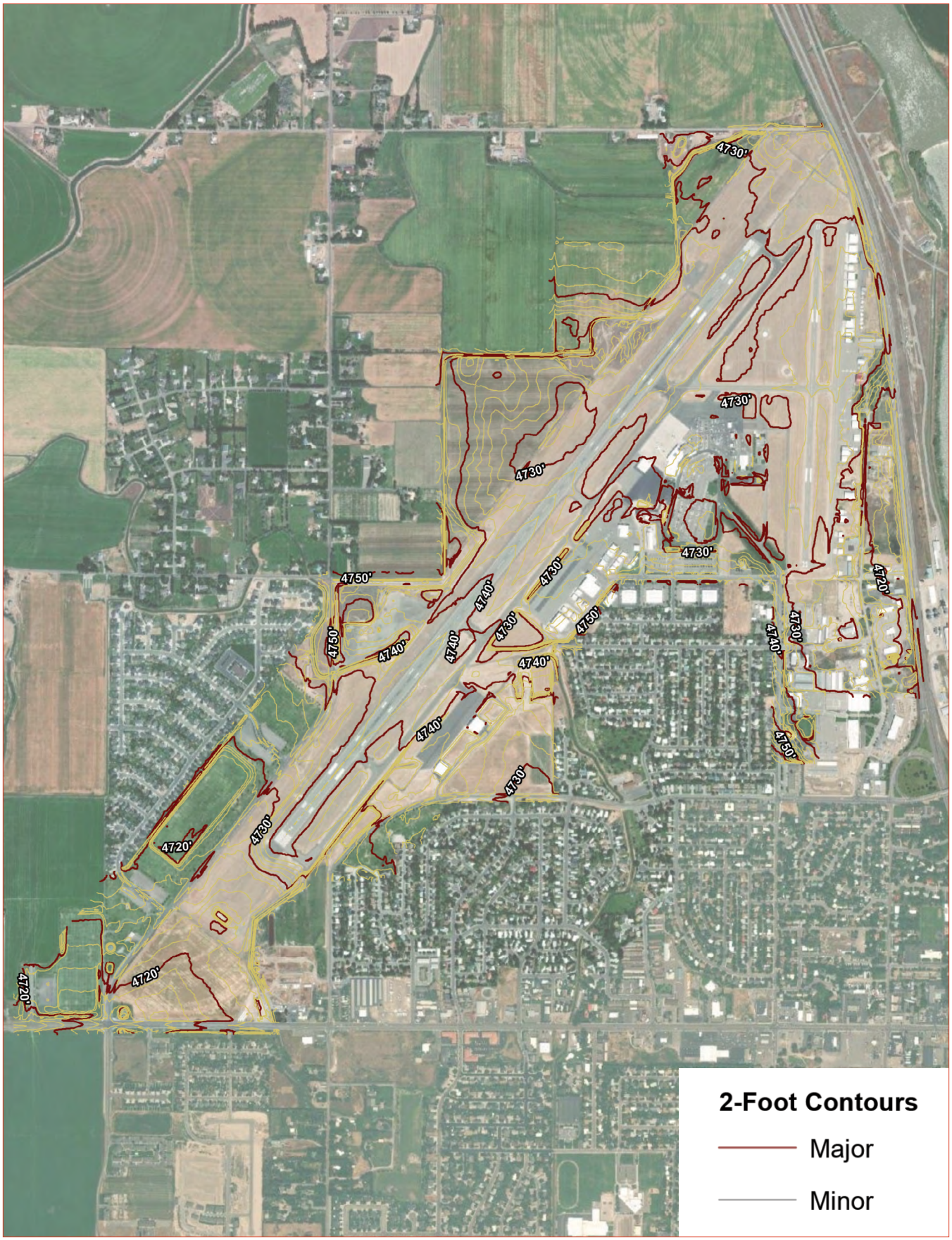
Approximately 95% of the soil type at IDA is the pancheri silt loam variety. This soil type has a hydrologic soil group rating of B which means it has a moderate infiltration rate when thoroughly wet. It is considered well drained with a moderate rate of water transmission. Soil texture ranges from moderately fine to moderately coarse. Pancheri silt loam, with a slope of zero to two percent and two to four percent, is considered prime farmland if irrigated and reclaimed of excess salts and sodium. However, pancheri silt loam with a slope of four to eight percent is not considered to be prime farmland.

4.1.2. Vegetation

The eastern Snake River Plain contains thousands of square miles of sagebrush desert and farmland irrigated with water withdrawn from the Eastern Snake Plain Aquifer. Vegetation in the Snake River Plain consists of Wyoming big sagebrush (*Artemisia tridentata* subsp. *wyomingensis*), basin big sagebrush (*Artemisia tridentata*), mountain sagebrush (*Artemisia tridentata* subsp. *vaseyana*), bluebunch wheatgrass (*Pseudoroegneria spicata*), Idaho fescue (*Festuca idahoensis*), Indian ricegrass (*Achnatherum hymenoides*), rabbitbrush (*Ericameria nauseosa*), and fourwing saltbush (*Atriplex canescens*).[6]

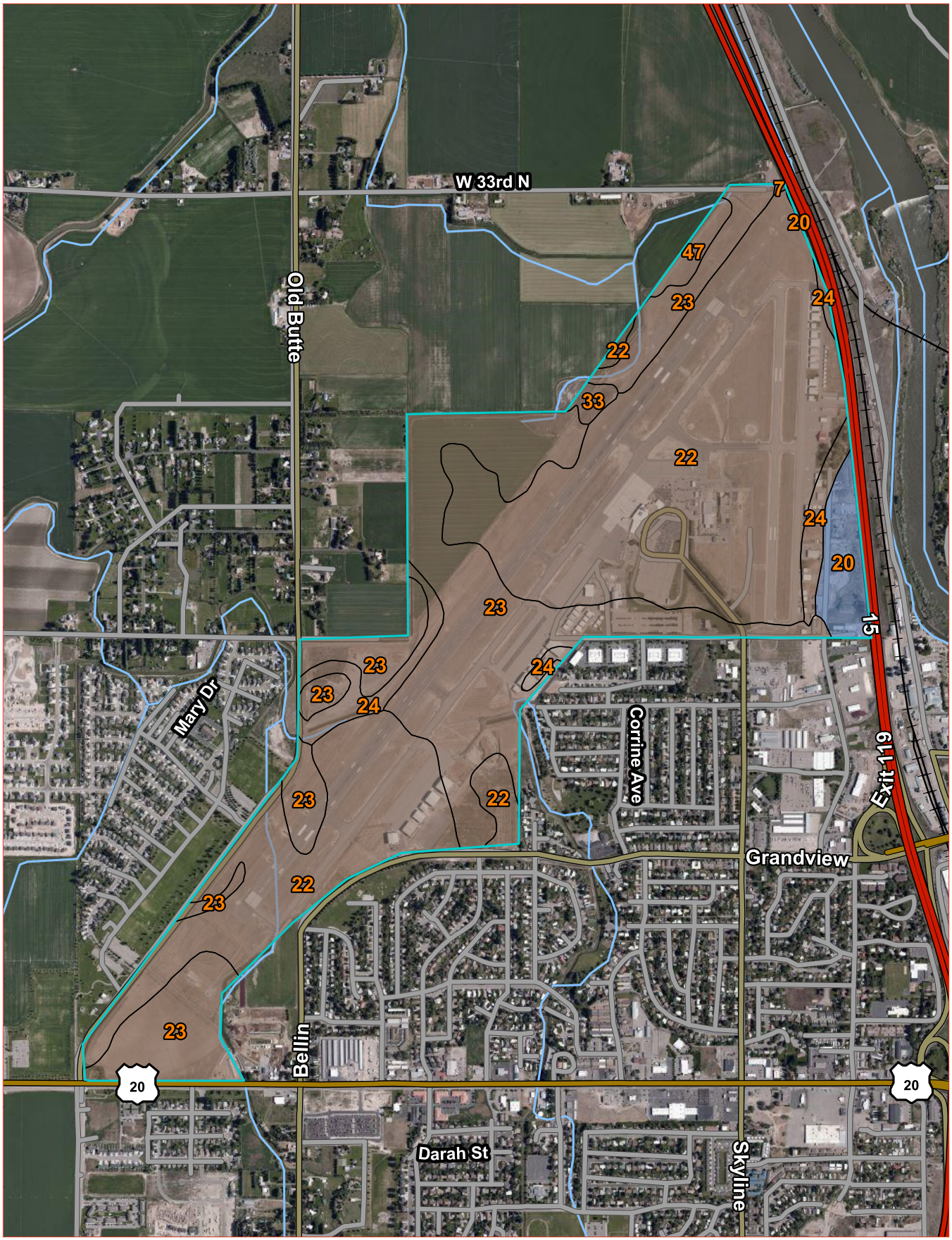
The USDA Plant Hardiness Zone Map is the standard by which gardeners and growers can determine which plants are most likely to thrive at a given location. The USDA has given Idaho Falls a growing zone designation of 5a. This designation means the average annual extreme minimum temperature ranges between minus 20 to minus 15 degrees Fahrenheit.[7]

Figure 4.1: Topography of Idaho Falls Regional Airport



Source: T-O Engineers

Figure 4.2: Soil Types at Idaho Falls Regional Airport



Source: USDA NRCS

4.1.3. Climate

The Snake River Plain ecoregion has a dry, mid-latitude steppe (i.e., grassland plain) climate which is marked by warm summers and cold winters. According to the National Oceanic and Atmospheric Administration's (NOAA) 1981–2010 Climate Normals, the average high temperature at the airport is 57.3 F, and the average low temperature is 31 F. As shown in Figure 4.3, July is the hottest month with an average high temperature of 86.2 F, and January is the coldest month with an average low temperature of 11.7 F. On average, the airport receives an annual total of 10.39 inches of precipitation. As shown in Figure 4.4, May receives the most precipitation with an average of 1.5 inches, and July receives the least precipitation with an average of 0.5 inches.

Figure 4.3: Average Temperatures

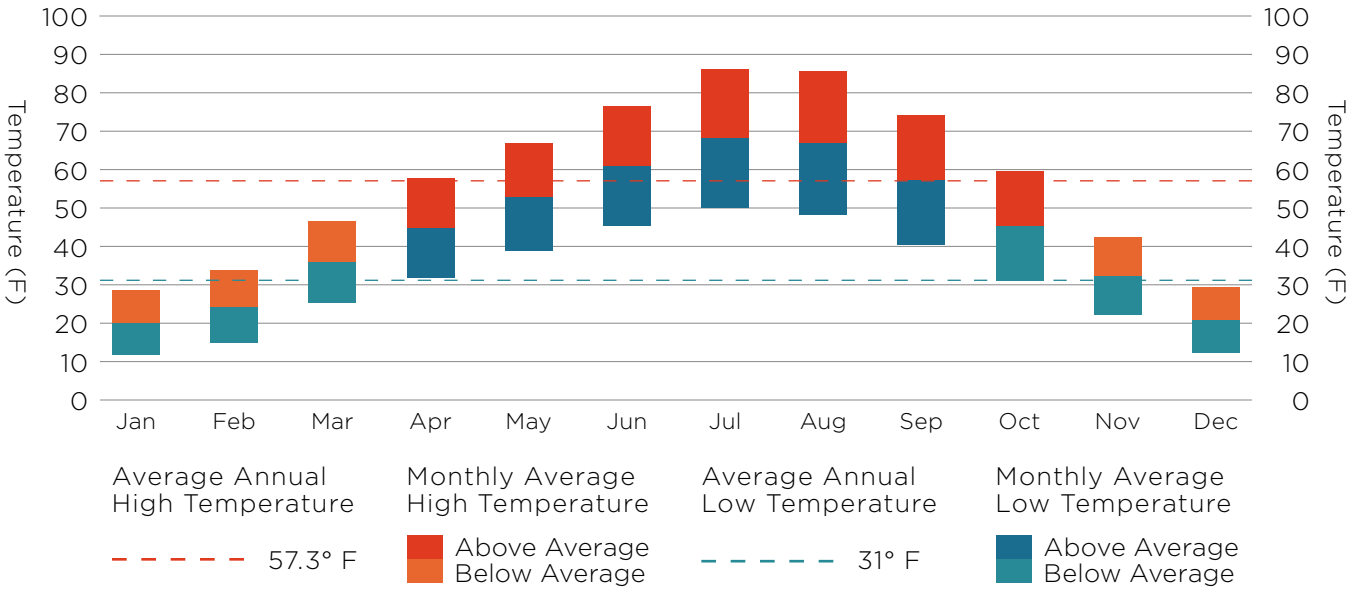
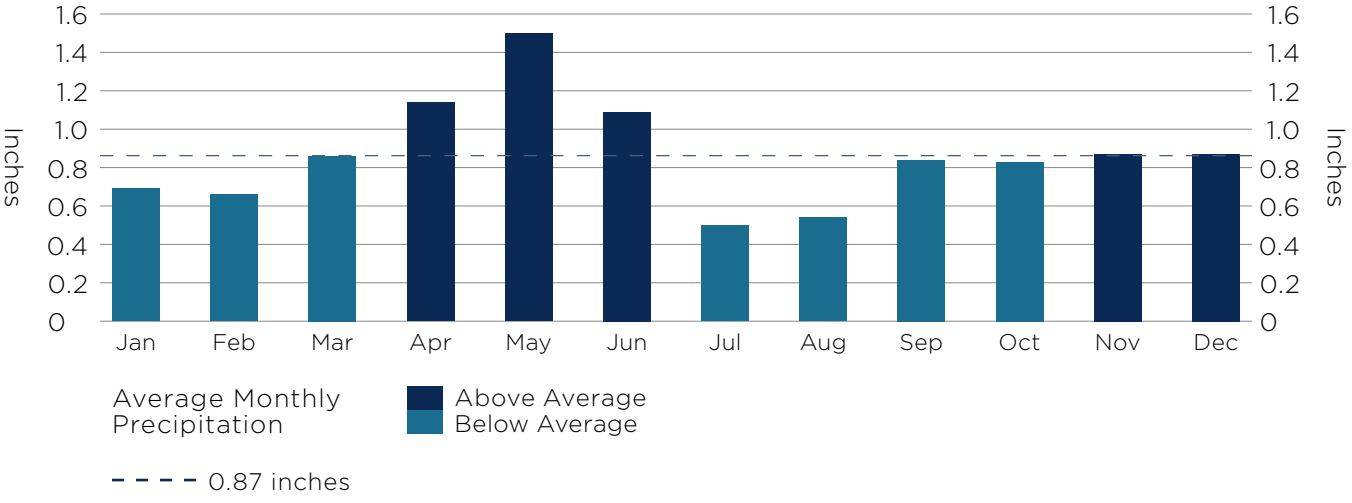


Figure 4.4: Average Precipitation



Source: NOAA 1981-2010 Climate Normals for Idaho Falls Regional Airport

4.1.4. Wind Coverage

Both wind speed and direction can significantly impact a runway's safe usability. While aircraft are capable of safely taking off and landing with a crosswind, smaller aircraft are typically more affected by them. Other factors must also be taken into consideration such as crosswind speed, type of aircraft, and the skill of the pilot.

When determining a runway's ideal orientation, FAA guidance states that an airport's primary runway should be aligned with the prevailing wind. It also states that wind coverage for a runway should be a minimum of 95%. In other words, a runway's orientation should be the direction that results in the least amount of crosswind (i.e., wind blowing at a right angle to the runway). Typically, this is based on an analysis of wind data that includes the last ten consecutive years of wind observations.

The aircraft approach category (AAC) and airplane design group (ADG), as defined in Chapter 1, are combined with the runway approach and visibility minimums to form the runway design code (RDC). As shown in Table 4.2, the RDC is then used to determine the allowable crosswind component. Essentially, this means the runway should be aligned so that crosswinds don't exceed allowable speeds 95% of the time in order to provide conditions that are safe for the type of aircraft that typically use the runway.

Table 4.2: Allowable Crosswind Component by Runway Design Code

Runway Design Code	Allowable Crosswind Component (Knots)
A-I and B-I (includes small aircraft)	10.5
A-II and B-II	13.0
A-III, B-III, C-I through C-III, D-I through D-III	16.0
A-IV, B-IV, C-IV through C-VI, D-IV through D-VI	20.0

Source: FAA AC 150/5300-13B, Table B-1

When conducting wind analysis, it is important the data reflects all conditions to ensure adequate runway coverage. The data used to conduct wind analysis for this report was obtained from the FAA's Airport Data and Information Portal (ADIP) for 2011–2020 which includes wind direction, speed, and visibility conditions. The resulting wind coverage percentages are listed in Table 4.3.

The following wind roses and wind overlays incorporate data from 92,858 observations for the all-weather wind roses and wind overlay, 13,962 for the instrument flight rules (IFR) wind rose and wind overlay, and 79,540 for the visual flight rules (VFR) wind overlay.

Table 4.3: Wind Coverage Percentages

Crosswind	Runway 3/21			Runway 17/35		Combined Runways	
	All Weather	IFR	VFR	All Weather	VFR	All Weather	VFR
10.5 Knots	97.94%	98.06%	97.93%	93.78%	93.62%	99.24%	99.24%
13 Knots	97.05%	99.02%	99.06%	97.03%	96.87%	99.65%	99.66%
16 Knots	99.70%	99.62%	99.71%	98.91%	98.83%	99.89%	99.89%
20 Knots	99.93%	99.89%	99.93%	99.72%	99.70%	99.98%	99.98%

Source: FAA Airport Data and Information Portal

Figure 4.5: Runway 3/21 All Weather Wind Rose

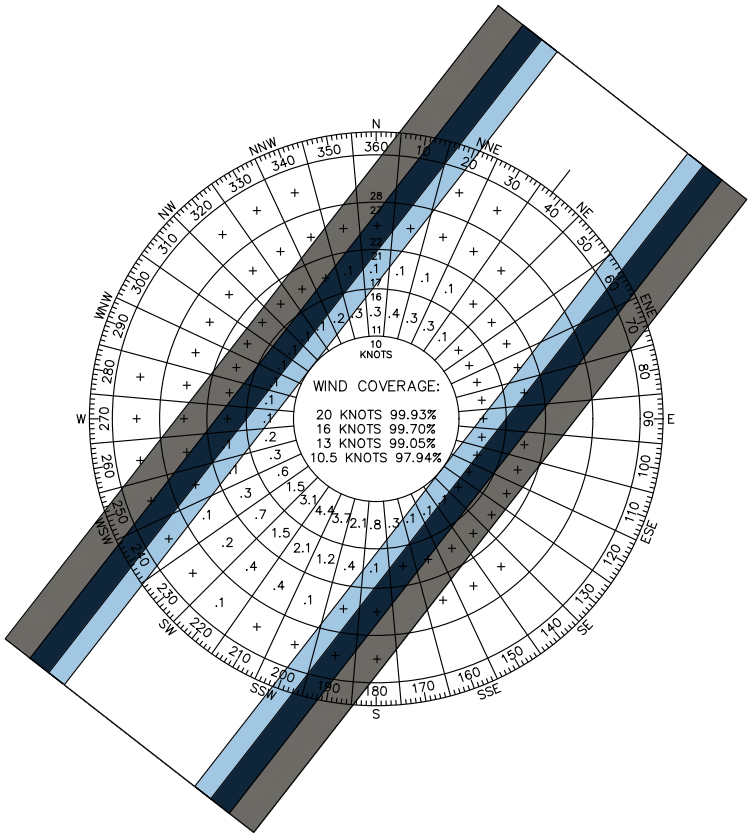
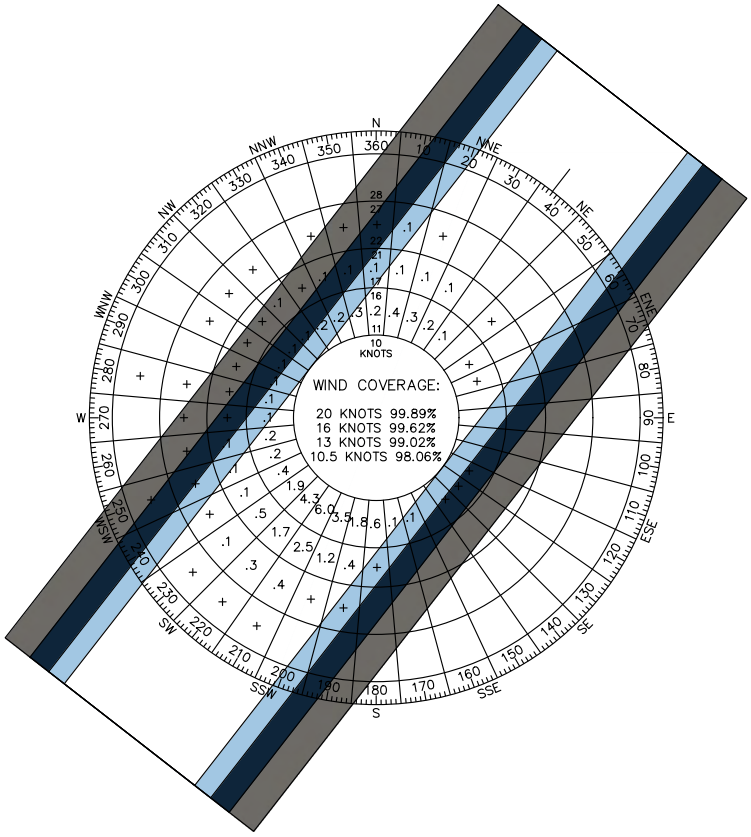


Figure 4.6: Runway 3/21 Instrument Flight Rules Wind Rose



Source: FAA Airport Data and Information Portal

Figure 4.7: Runway 17/35 All Weather Wind Rose

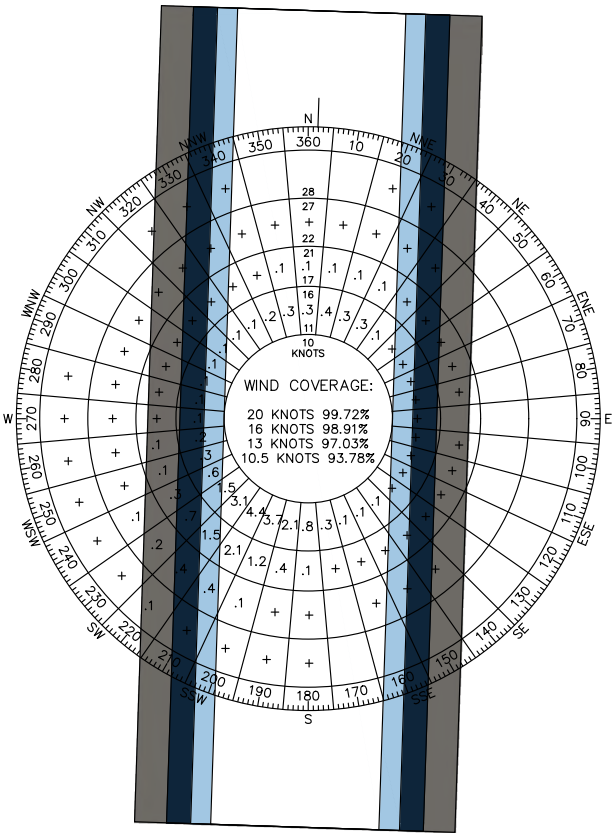
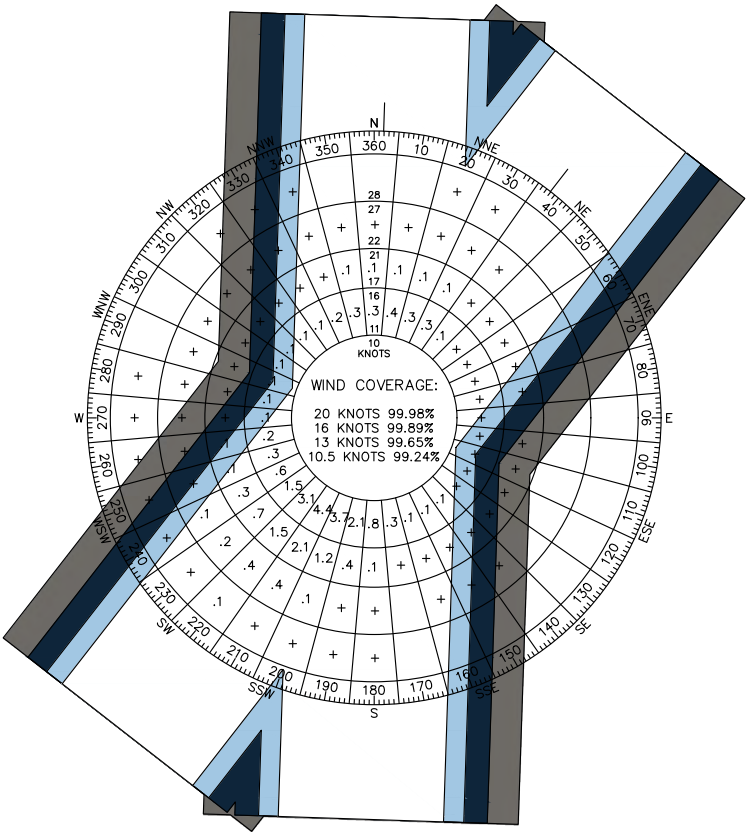


Figure 4.8: Combined Runways All Weather Wind Rose



Source: FAA Airport Data and Information Portal

Combined Runways Wind Overlays

Figure 4.9: All Weather Wind Overlay

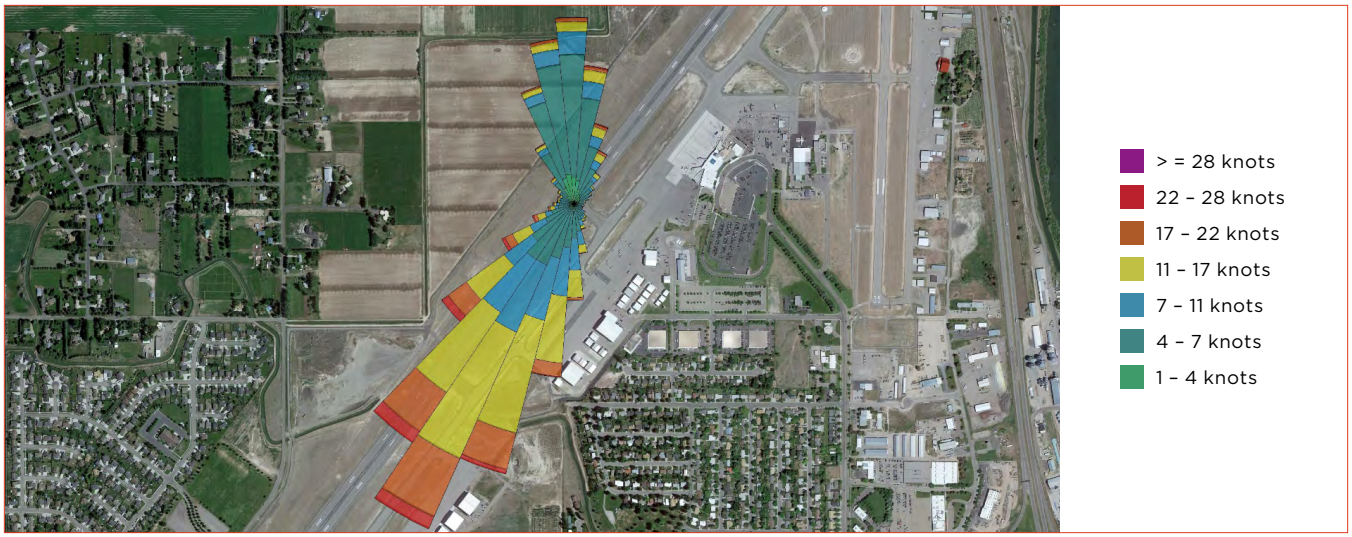


Figure 4.10: Instrument Flight Rules Wind Overlay

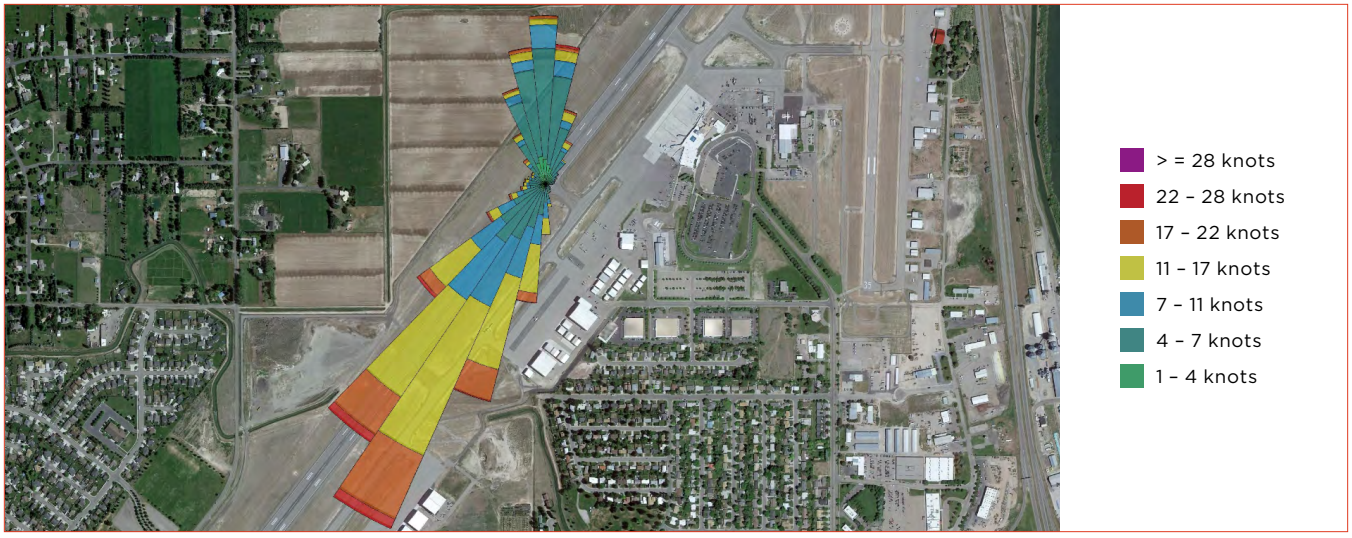
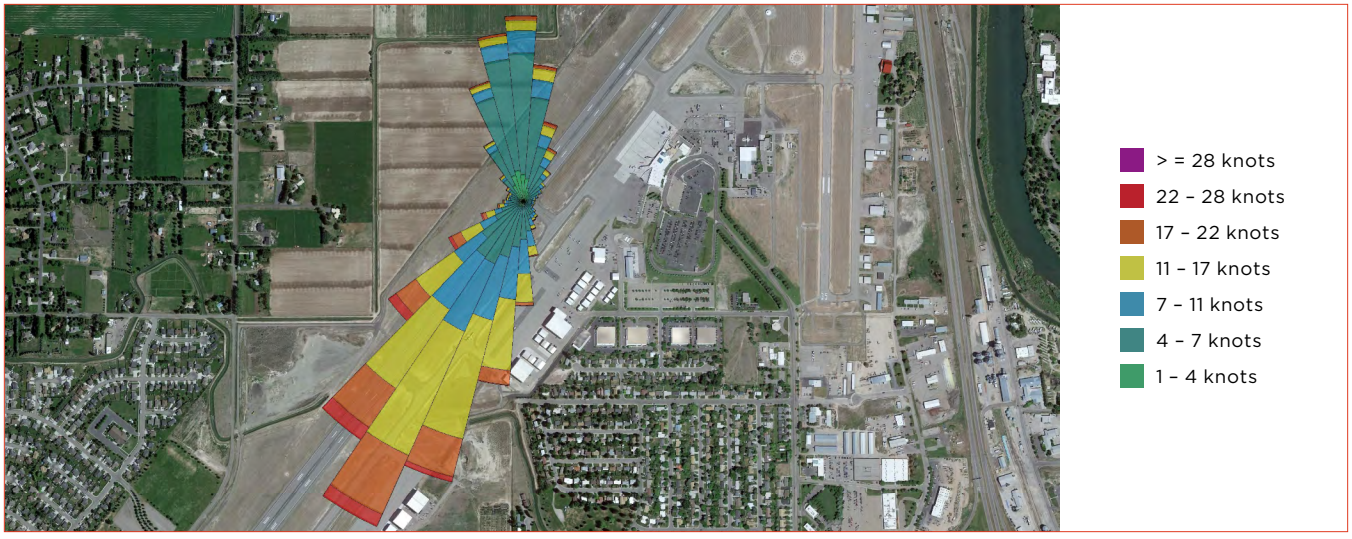


Figure 4.11: Visual Flight Rules Wind Overlay



Source: FAA Airport Data and Information Portal

4.2. Airport Zoning

Effective compatible land use planning around an airport addresses airspace, safety, and noise considerations. In many instances, the community's willingness to take a proactive approach in establishing compatible land use policies around the airport prevents the need to be reactive and mitigate more severe conflicts in the future. Effective comprehensive land use compatibility plans take both height and land use restrictions into consideration and are incorporated via zoning. Coupled with other proactive measures, such as voluntary noise abatement programs and selective fee-simple land acquisition, proactive planning around the airport protects both the airport and the surrounding community. Furthermore, federal grant assurances require airport sponsors to operate and maintain the airport in a safe and serviceable condition, prevent and remove airport hazards, and take appropriate measures to ensure compatible land uses exist around the airport.

It is important to point out there is a difference between basic land use zoning and height restrictive zoning. As its name implies, the intent of height restrictive zoning is to protect the airspace around an airport from objects or structures that may pose hazards to aircraft operations. In general, this type of zoning conforms to Title 14 of the Code of Federal Regulations Part 77 (Part 77). On the other hand, the intent of land use zoning is to prevent incompatible land uses near an airport. Not only does this practice protect the airport, but it also helps prevent the effects of airport operations, such as noise, dust, fumes, or aircraft accidents, from having a negative impact on sensitive land uses such as residential areas.

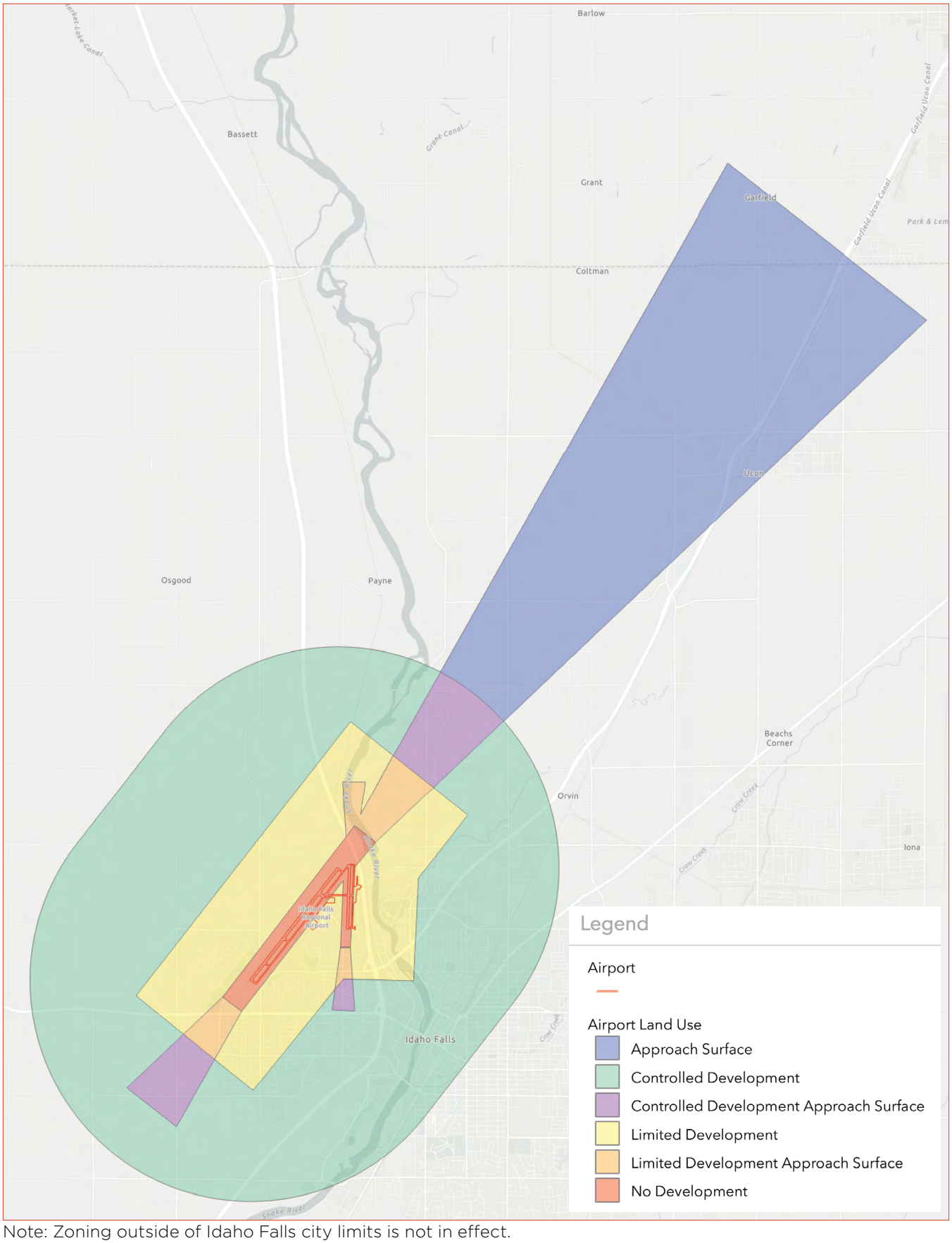
4.2.1. City Land Use Protections

The city of Idaho Falls has developed a comprehensive plan that provides a road map for city and community leaders to address and strategically plan for growth. An update to this plan, *Imagine IF, A Plan to Move Idaho Falls Forward Together, City of Idaho Falls' Comprehensive Plan*, was completed in 2021 and approved by the city council February 24, 2022.[8]

As part of the comprehensive planning process, background studies were performed to provide an understanding of current conditions of several resources important to the community—including the airport. The section that discusses the airport refers to the Airport Overlay Zones that were adopted by the city in 2019 with the intention of restricting incompatible uses from locating near the airport (Idaho Falls City Code; Title 11, Chapter 5, Section 11-5-3).[9]

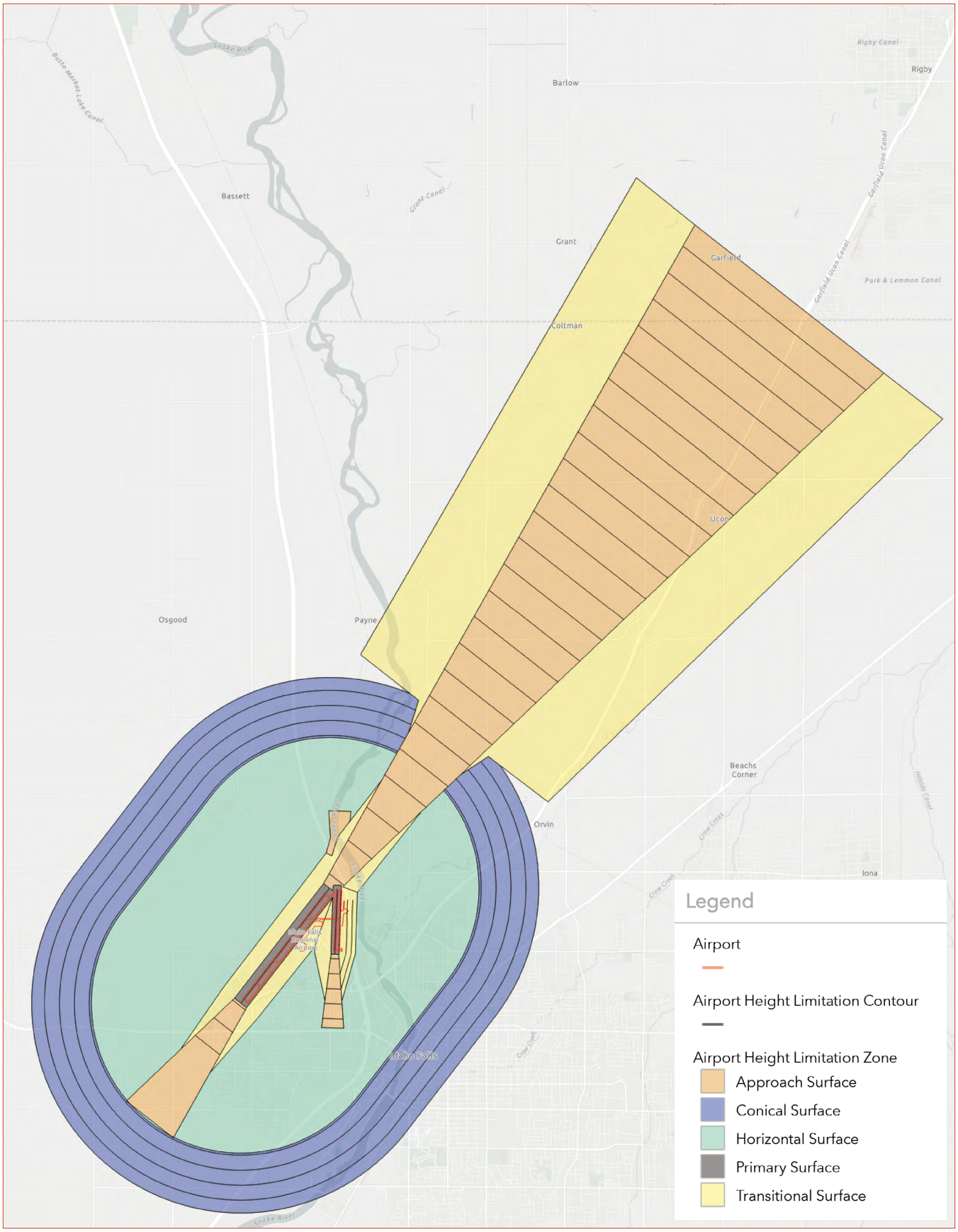
The compatible land use designations, which are shown in Figure 4.12, include a No Development Zone, Limited Development Approach Surface Zone, Controlled Development Approach Surface Zone, Limited Development Zone, and Controlled Development Zone. Height zone designations, which protect the airport's Part 77 surfaces, are shown in Figure 4.13. These include an Approach Surface Height Zone, Transitional Surface Height Zone, Horizontal Surface Height Zone, and Conical Surface Height Zone. As shown in Figure 4.14, the city's land use regulations designate airport property as Light Manufacturing and Heavy Commercial (LM). Additionally, a map showing the location of all public property located in the vicinity of the airport is included as Figure 4.15. This includes land owned by the city of Idaho Falls, Bonneville County, state of Idaho, and the Bureau of Land Management (BLM).

Figure 4.12: Airport Land Use Zoning Map



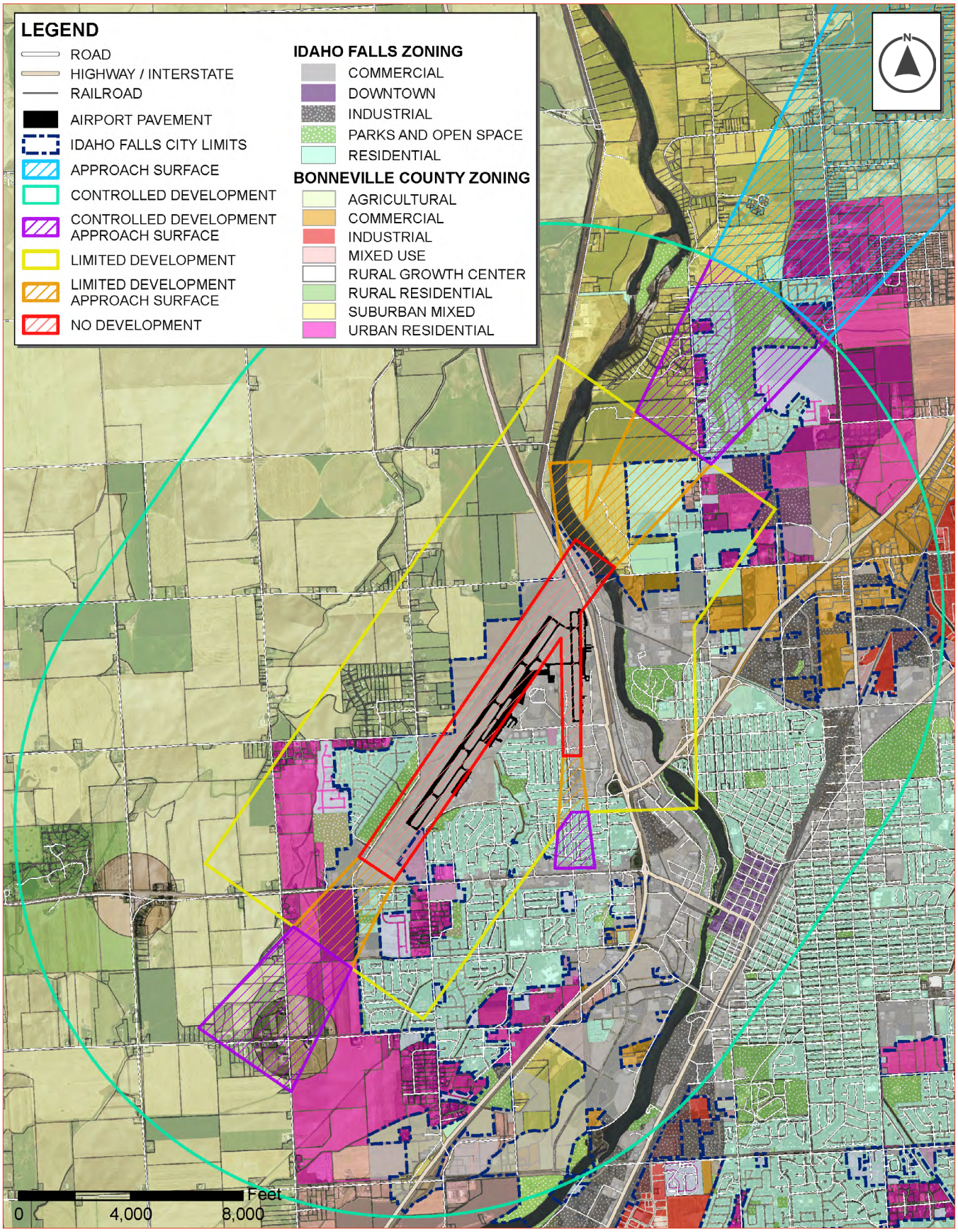
Note: Zoning outside of Idaho Falls city limits is not in effect.
Source: City of Idaho Falls

Figure 4.13: Airport Height Zoning Map



Note: Zoning outside of Idaho Falls city limits is not in effect.
Source: City of Idaho Falls

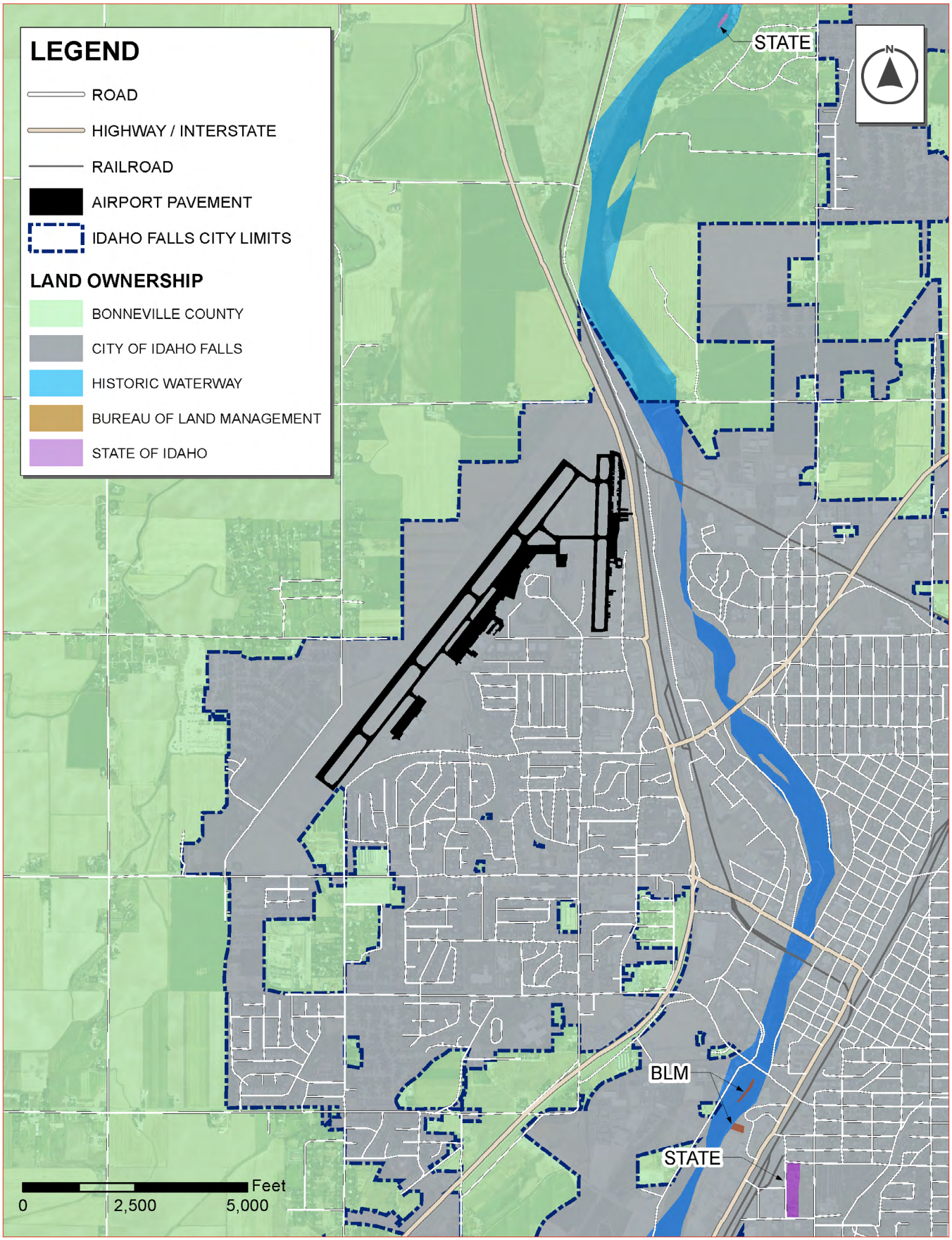
Figure 4.14: Idaho Falls Land Use Zoning Map



Note: Zoning outside of Idaho Falls city limits is not in effect.

Source: City of Idaho Falls and Bonneville County

Figure 4.15: Idaho Falls Corporate Boundaries



Source: Bureau of Land Management

4.3. Based Aircraft

According to the Airport Master Record, Form 5010-1, there are 168 aircraft based at the airport. This includes 128 single engine, 29 multi-engine, six jets, and five helicopters. In addition, there are three gliders listed that are not included in this number. The 2010 Airport Master Plan reported a total of 151 based aircraft, and the 2019 planning study completed for Runway 17/35 reported approximately 100 based aircraft. Accurately determining the number of based aircraft can be somewhat challenging for an airport because it is primarily determined using self-reported information provided by airport tenants.

4.4. Pavement Condition

Airport sponsors that receive federal assistance to construct or repair airfield pavements are required to establish a pavement maintenance management program. This has been shown to be the most cost efficient method for ensuring airfield pavement is safe. Pavement tends to deteriorate relatively slowly during the first several years. However, it eventually begins to deteriorate at a faster rate which results in an accelerated drop in condition. Timely maintenance can renew the pavement condition and prolong its lifespan. An effective pavement maintenance management program will include scheduling the necessary maintenance prior to its condition beginning to deteriorate rapidly. At a minimum, a pavement maintenance management program must include an inventory of the airfield pavement, an inspection schedule, and records of all pavement inspections and maintenance activities. Information about airport pavement maintenance management programs can be found in FAA AC 150/5380-7B, *Airport Pavement Management Program (PMP)*.

A pavement condition report was completed November 2015 by Applied Research Associates, Inc. This report details the pavement condition index rating for each of the paved surfaces at the airport as of July 2015. The pavement condition index (PCI) is a rating of the condition of each pavement surface and indicates its functional performance. Standard PCI values range from 0–100. As shown in Table 4.4, these ratings are grouped into seven color-coded categories. Typically, scores of 65 or more only require preventative maintenance, such as crack sealing, while scores between 41–64 require major rehabilitation. Pavements with a PCI rating of 40 or less require reconstruction.

Table 4.4: Pavement Condition Index Rating Categories

Rating	0–10	11–25	26–40	41–55	56–70	71–85	86–100
Category	Failed	Serious	Very Poor	Poor	Fair	Satisfactory	Good
	Reconstruction Required			Major Rehabilitation		Preventative Maintenance	

Source: Applied Research Associates, Inc.

The findings from the 2015 pavement condition report are summarized in the tables on the following pages and illustrated in Figure 4.16. It is important to note that multiple pavement maintenance projects have been completed since 2015, and the PCI values shown may not reflect current PCI ratings. These projects include rehabilitation of Taxiways A and C as well as rehabilitation of Runway 3/21 and the associated connecting taxiways.

As shown in Table 4.5, the overall average for all airfield pavements was 79 with an average PCI of 86 for the runways, 65 for the taxiways, and 83 for the aprons. Table 4.6 lists the size of each branch of pavement and the number of sections within each branch. A detailed summary of each section is shown in Table 4.7. This includes the type of surface, size, age, and PCI rating for each section.

Table 4.5: Average Airfield Pavement PCI Rating by Facility Type, 2015

Facility Type	Average PCI Rating
Runways	86
Taxiways	65
Aprons	83
Overall Average Airfield Pavement PCI Rating	**79**

Source: Applied Research Associates, Inc.

Table 4.6: Pavement Branch Identification

Branch ID	Name	Number of Sections	Square Footage
AFBO	FBO Ramp	3	52,320
AFEDEX	FedEx Ramp	3	68,637
AGA	GA Ramp	8	323,562
ASQ	South Quad Ramp	1	257,883
ATERM	Terminal Ramp	9	1,151,413
RW1735	Runway 17/35	1	304,442
RW220	Runway 2/20 (3/21)	4	1,350,240
TLA	Hangar Taxilane	1	9,875
TWA	Taxiway A	2	570,812
TWA1	Taxiway A-1	1	26,380
TWA2	Taxiway A-2	1	33,755
TWA3	Taxiway A-3	1	33,458
TWA4	Taxiway A-4	1	34,089
TWA5	Taxiway A-5	1	42,972
TWB	Taxiway B	1	325,880
TWC	Taxiway C	3	196,863

Source: Applied Research Associates, Inc., Table 1

Table 4.7: Pavement Age and PCI Ratings, 2015

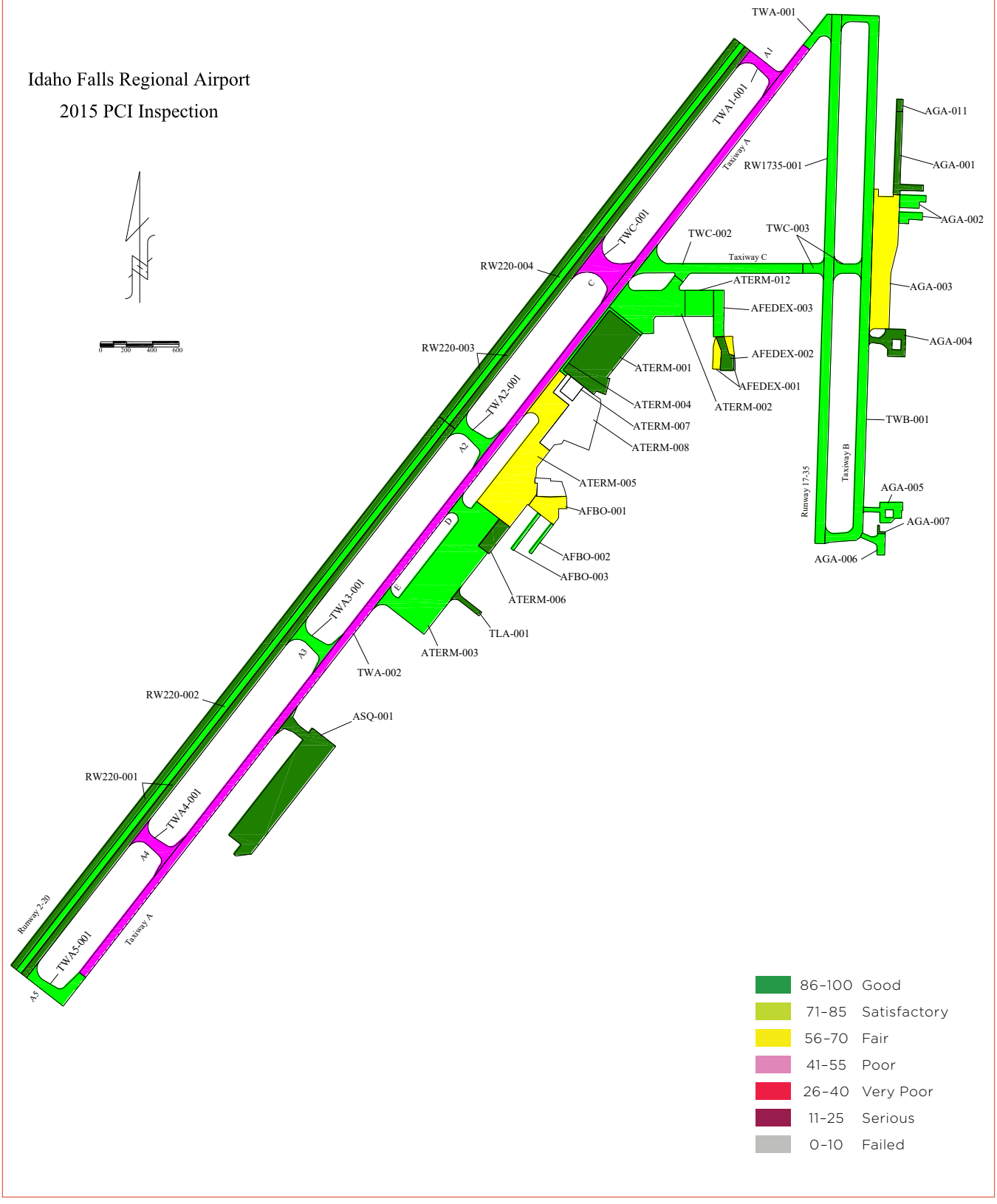
Branch ID	Section	Surface Type	Square Footage	Year Built	2015 PCI
AFBO	1	Asphalt with Asphalt Overlay	38,120	2003	67
AFBO	2	Asphalt with Asphalt Overlay	6,050	2004	76
AFBO	3	Asphalt with Asphalt Overlay	8,150	2004	82
AFEDEX	1	Asphalt Cement	20,593	2004	69
AFEDEX	2	Asphalt Cement	19,702	2014	100
AFEDEX	3	Asphalt Cement	28,342	2004	78

Source: Applied Research Associates, Inc., Table 3

Branch ID	Section	Surface Type	Square Footage	Year Built	2015 PCI
AGA	1	Asphalt Cement	38,707	2006	88
AGA	11	Asphalt Cement	4,362	2014	100
AGA	2	Asphalt Cement	29,525	2005	79
AGA	3	Asphalt with Asphalt Overlay	178,016	2004	66
AGA	4	Asphalt Cement	31,816	2005	86
AGA	5	Asphalt Cement	24,693	2006	82
AGA	6	Asphalt Cement	15,060	2006	74
AGA	7	Asphalt Cement	1,383	2015	100
ASQ	1	Asphalt Cement	257,883	2015	100
ATERM	1	Portland Cement Concrete	181,915	2005	90
ATERM	12	Asphalt Cement	45,577	2004	77
ATERM	2	Asphalt with Asphalt Overlay	138,240	2004	83
ATERM	3	Asphalt Cement	340,480	2006	83
ATERM	4	Asphalt with Asphalt Overlay	19,031	2004	82
ATERM	5	Asphalt with Asphalt Overlay	254,000	2003	68
ATERM	6	Asphalt Cement	26,240	2012	94
ATERM	7	Portland Cement Concrete	17,080	2015	100
ATERM	8	Asphalt Cement	130,850	2015	100
RW1735	1	Asphalt Cement	304,442	2004	78
RW220	1	Asphalt Cement	553,000	2008	90
RW220	2	Asphalt Cement	266,500	2008	85
RW220	3	Asphalt with Asphalt Overlay	367,160	2008	89
RW220	4	Asphalt with Asphalt Overlay	183,580	2008	85
TLA	1	Asphalt Cement	9,875	2006	88
TWA	1	Asphalt Cement	23,278	2005	78
TWA	2	Asphalt Cement	547,534	1998	54
TWA1	1	Asphalt Cement	26,380	1998	44
TWA2	1	Asphalt Cement	33,755	2008	83
TWA3	1	Asphalt Cement	33,458	2008	84
TWA4	1	Asphalt Cement	34,089	1998	46
TWA5	1	Asphalt Cement	42,972	2008	80
TWB	1	Asphalt with Asphalt Overlay	235,880	2005	78
TWC	1	Asphalt Cement	60,475	1998	54
TWC	2	Asphalt with Asphalt Overlay	105,000	2004	73
TWC	3	Asphalt Cement	31,388	2004	80

Source: Applied Research Associates, Inc., Table 3

Figure 4.16: Pavement Condition Index Diagram



Source: Applied Research Associates, Inc.

4.5. Aviation Facilities

The airport property is a total of 866 acres, and the elevation is 4,743.7 feet above mean sea level (MSL). Figure 4.17 shows the general layout of the airport's main facilities.

4.5.1. Runways

The primary runway, Runway 3/21, is a northeast-southwest oriented runway (Figure 4.18).[1] As shown in Table 4.8, the runway is 9,002 feet long and 150 feet wide, and declared distances are all equal to the full runway length. The elevation of the Runway 3-end is 4,742 feet, and the elevation of the Runway 21-end is 4,731 feet. As a result, the runway slopes down toward the Runway 21-end at a 0.11% grade. As shown in Table 4.9, the runway is equipped with high intensity runway lights (HIRL) and has precision instrument runway markings. The runway is paved with asphalt that has been grooved.[2] It's published pavement classification number (PCN) is 57/F/B/X/T. This classification is a relative indication of the load-carrying capacity of the pavement; F is pavement type (flexible), B is the subgrade category (medium strength), X indicates tire pressure (medium, limited to 218 psi), and T is the method used to determine the PCN value (technical evaluation). It has a published weight bearing capacity of 140,000 pounds for single wheel (SW), 175,000 pounds for dual wheel (DW), and 270,000 pounds for dual tandem wheel (DTW) configurations (Table 4.8).

The secondary or crosswind runway, Runway 17/35, is a north-south oriented runway (Figure 4.18). This runway is 3,964 feet long and 75 feet wide. There are no declared distances listed on the Airport Master Record for Runway 17/35. The elevation of the Runway 17-end is 4,731.1 feet, and the elevation of the Runway 35-end is 4,731.2 feet. As a result, the runway has a very slight downward slope toward the Runway 17-end with an approximate grade of 0.007%. The runway is equipped with medium intensity runway lights (MIRL) and has visual runway markings. The remarks section of the Airport Master Record states that takeoffs and landings are not authorized for this runway between sunset to sunrise unless air traffic control services are available. The runway is paved with asphalt with a published PCN of 7/F/B/X/T. It has a published weight bearing capacity of 43,000 pounds for SW and 58,000 pounds for DW configurations.

Table 4.8: Runway Pavement Dimensions and Maximum Allowable Gross Weights

Runway	Length	Width	SW	DW	DTW
Runway 3/21	9,002 feet	150 feet	140,000 #	175,000 #	270,000 #
Runway 17/35	3,964 feet	75 feet	43,000 #	58,000 #	—

Source: Pavement Consultants, Inc.

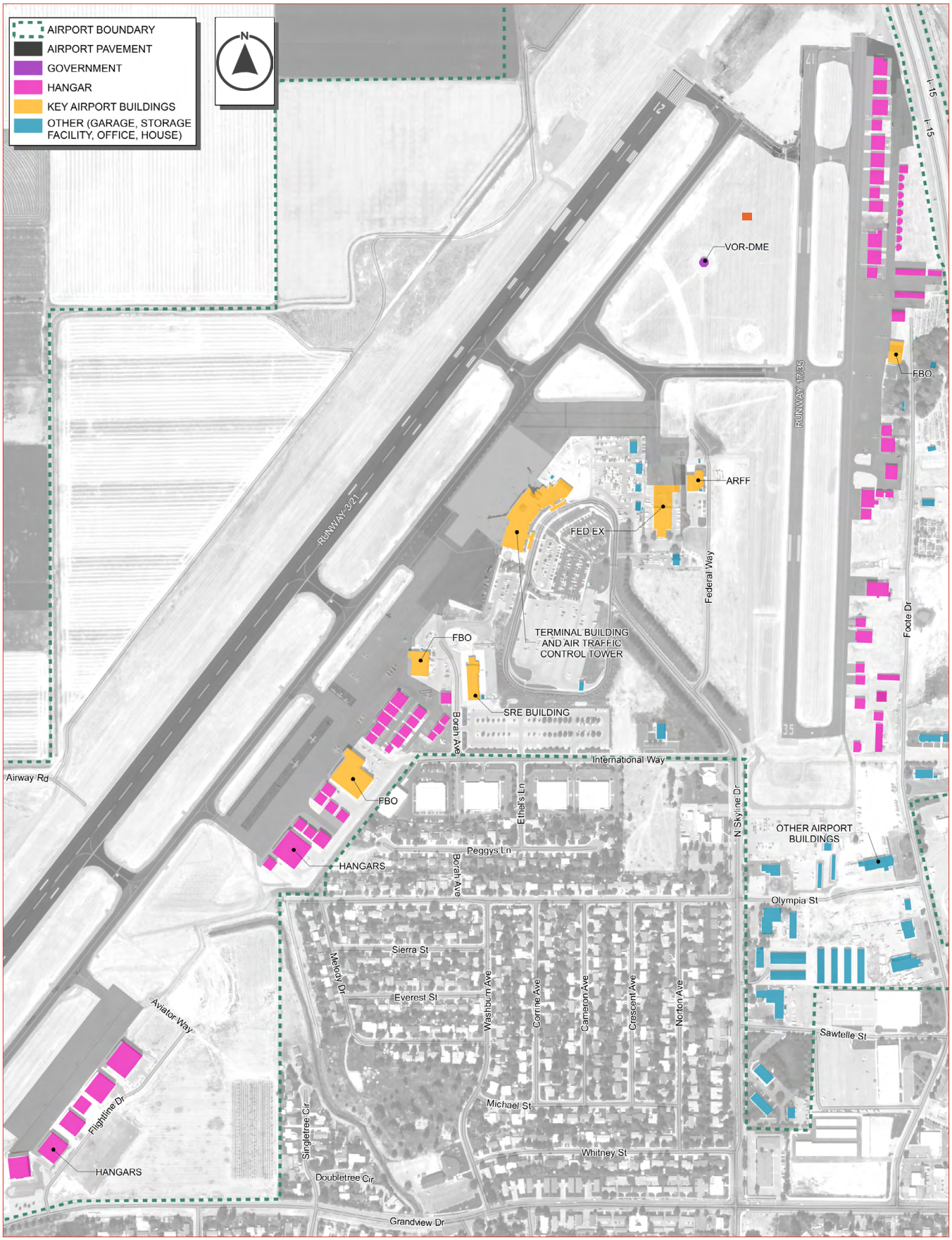
Table 4.9: Runway Lighting

NAVAID	Runway 3	Runway 21	Runway 17	Runway 35
HIRL	•	•		
MIRL			•	•
Markings	Precision	Precision	Visual	Visual

Source: T-O Engineers

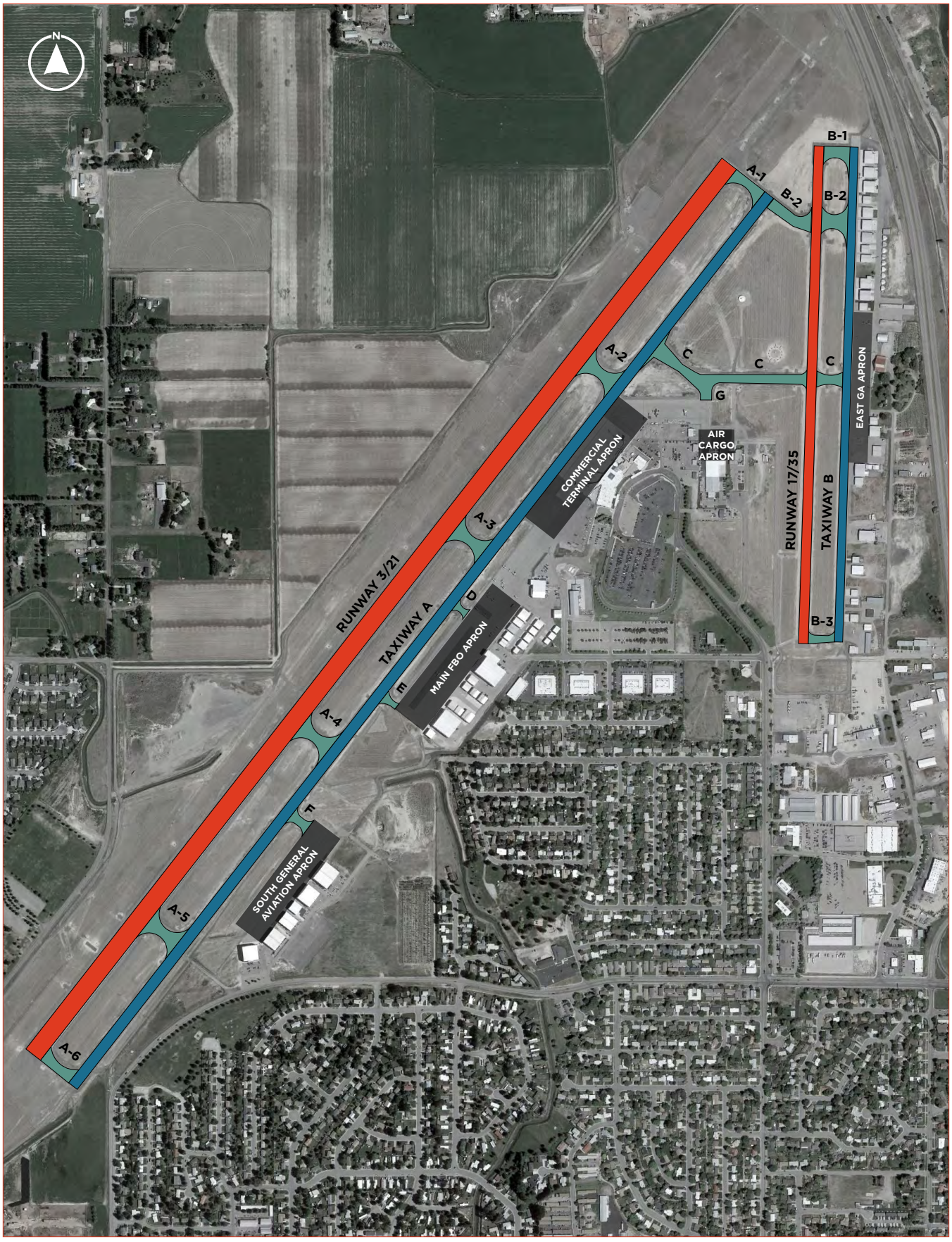
1. The runway's designation was revised from 2/20 to 3/21 in 2018 to account for normal changes in magnetic declination.
2. Pavement grooving improves drainage which helps to eliminate standing water on the runway, reduces the risk of hydroplaning, and protects against ice formation.

Figure 4.17: Main Airport Facilities



Source: T-O Engineers

Figure 4.18: Runway and Taxiway System



Source: T-O Engineers

4.5.2. Taxiways, Taxilanes, and Connectors

Taxiways and taxiway connectors increase airfield traffic flow and capacity by allowing aircraft to safely and efficiently get to and from the runway without interfering with takeoffs or landings. Both are considered part of the movement area. At airports with an air traffic control tower, such as IDA, air traffic controllers are responsible for maintaining aircraft separation within the movement area. Pilots must get permission from air traffic control before entering these areas when the control tower is open.[3]

Taxiways, which are designated with a letter or a letter and number combination, look similar to runways but are usually not as wide and have different markings. Taxilanes, which are not considered to be part of the movement area, allow aircraft to safely access taxiways and taxiway connectors from other non-movement areas of the terminal apron such as those used for loading, refueling, parking, or maintenance. They are intended for low speed and precise movement of aircraft.

Idaho Falls Regional Airport has three main taxiways, several taxiway connectors, and no designated taxilanes. All taxiways are equipped with medium intensity taxiway lights (MITL) except for Taxiway B and its connectors to Runway 17/35 which are equipped with blue taxiway reflectors.

West Taxiway System

As shown in Figure 4.18, Taxiway Alpha (A) is a full-length parallel taxiway for Runway 3/21. It is 60 feet wide with 20-foot unpaved shoulders. The Taxiway A centerline is 400 feet from the Runway 3/21 centerline. This meets the runway centerline to taxiway centerline separation requirements for ARC C-III. Much of Taxiway A was either reconstructed or rehabilitated between 2017 and 2018.

There are six taxiway connectors between Taxiway A and Runway 3/21. These connectors have been designated as A-1 through A-6 (from north to south) and are of varying widths due to curves and fillets. Taxiways A-1 and A-2 were reconstructed in 2018.

Taxiway Foxtrot (F) connects the south general aviation apron to Taxiway A. Taxiways Echo (E) and Delta (D) connect the main fixed base operator (FBO) apron to Taxiway A. Taxiway Golf (G), which connects the north terminal apron to Taxiway Charlie (C), was constructed in 2018.

Taxiway C is the main taxiway that connects the east general aviation complex at Taxiway Bravo (B) and Runway 17/35 to Taxiway A. Taxiway C is 70 feet wide between Taxiway B and Runway 17/35 and is 60 feet wide between Runway 17/35 and Taxiway A. This taxiway was reconstructed and realigned in 2018.

East Taxiway System

As shown in Figure 4.18, Taxiway B is a full-length parallel taxiway for Runway 17/35. It is 35 feet wide was last rehabilitated in 2005. The Taxiway B centerline is 270 feet from the Runway 17/35 centerline. The movement area boundary is approximately 30 feet from the Taxiway B centerline and does not meet standards.

There are four connecting taxiways between Taxiway B and Runway 17/35. They have been designated as B-1, B-2, C, and B-3 (from north to south). Taxiways B-1 and B-2 were constructed in 2020 when the Runway 17-end was shortened. Taxiway B-2 also connects Runway 17/35 to Taxiway A at A-1.

3. The boundaries of the movement area are typically established by way of a letter of agreement between the control tower and the airport operator.

4.5.3. General Aviation Apron

There are three general aviation aircraft parking aprons at IDA. The south general aviation apron, which was constructed in 2015, is approximately 258,000 square feet. As shown in Figure 4.19, there is space for aircraft parking, but there are not marked spaces.

Figure 4.19: South General Aviation Apron

Source: T-O Engineers

The main FBO apron, which is constructed of asphalt, is approximately 650,000 square feet. It is located along Taxiway A to the south of the commercial terminal apron. As shown in Figure 4.20, there are 23 marked spaces for large aircraft and 24 spaces for small aircraft. Undesignated taxilanes provide access to the 15 hangars located within the main FBO apron.

Figure 4.20: Main FBO Apron

Source: T-O Engineers

The east general aviation apron, which is constructed of asphalt, is approximately 178,000 square feet. It is located along Taxiway B where it intersects with Taxiway C. As shown in Figure 4.21, there are 21 marked spaces for small aircraft parking, three helicopter parking circles, and a compass calibration pad.

Figure 4.21: East General Aviation Apron

Source: T-O Engineers

4.5.4. Commercial Terminal Apron

The commercial terminal apron, which is constructed of asphalt and concrete, is approximately 425,000 square feet. As shown in Figure 4.22, it is centrally located on the airfield and is situated along Taxiway A.

Figure 4.22: Commercial Terminal Apron

Source: T-O Engineers

The commercial terminal apron is marked with six aircraft parking stands, a vehicle service road, and a security identification display area (SIDA) boundary line. There is a concrete deicing pad on the south side of the apron.

4.5.5. Air Cargo Facilities

The air cargo apron is approximately 55,000 square feet and has one marked aircraft parking space. It is located between the car rental parking area and the aircraft rescue and fire fighting (ARFF) station. As shown in Figure 4.23, the cargo facility is operated by FedEx. This facility has approximately 30,000 square feet of warehouse space along with additional room for receiving and office space. There are three dedicated cargo operators at IDA. As shown in Table 4.10, all three operate between IDA and Salt Lake City.

Figure 4.23: Air Cargo Apron

Source: T-O Engineers

Table 4.10: IDA Cargo Service

Airline	Destination	Aircraft (ARC)
Alpine Air	Salt Lake City	Beech 1900 (B-II)
Corporate Air	Salt Lake City	Cessna 208 (A-II)
Empire	Salt Lake City	ATR-72 (B-II)

Source: FlightAware

4.5.6. Airport Traffic Control Tower

IDA has an airport traffic control tower (ATCT) located above the commercial terminal building (Figure 4.24). It operates daily from 7 a.m. to 8 p.m. and provides air traffic control services to airport users. These services include as weather reports, clearance delivery, ground control, and local control within the Class D airspace surrounding the airport. The tower, which was constructed in 1960, is approximately 85 feet tall and managed by Serco under the FAA Federal Contract Tower (FCT) program.

Figure 4.24: Airport Traffic Control Tower

Source: T-O Engineers

4.5.7. Airfield Signage

Airfield signs provide visual cues and instructions to pilots and vehicle operators that enhance safe and efficient movement on the runways and taxiways. As shown in Figure 4.25, elevated signs protect aeronautical surfaces and convey ground navigation information that enhances situational awareness when maneuvering on the airfield. The runways and taxiways at IDA are equipped with a combination of mandatory instruction signs, location signs, destinations signs, information signs, and boundary signs.

Figure 4.25: Airport Signage

Source: T-O Engineers

4.5.8. Aircraft Fuel Facilities

Fuel services at IDA are provided by Aero Mark. There is one fuel farm, which is adjacent to the SRE building, located at the end of Borah Avenue. It has two 25,000-gallon underground storage tanks for Jet A fuel and one 25,000-gallon underground storage tank for Aviation Gasoline (avgas). Aero Mark is planning to add an additional 25,000-gallon underground storage tank for Jet A fuel to meet new air service demand.

There are two self-serve fuel islands on the airport for dispensing avgas. One is located at the east general aviation area south of the Red Baron Hangar, and the other is next to the Aero Mark FBO building. The fuel pumps near the Red Baron Hangar are supplied by a 12,000-gallon underground storage tank, while the fuel pumps next to the FBO are fed by a direct line from the fuel farm.

Aero Mark also operates six fuel trucks. Three are for Jet A fuel; one with a capacity of 3,000 gallons, and two with a capacity of 5,000 gallons. The other three trucks are for avgas and have capacities of 900 gallons, 1,200 gallons, and 1,500 gallons.

4.5.9. Hot Spots

At an airport, a hot spot is a location within the movement area that has been identified by the FAA as having a history or potential risk of collisions or runway incursions. Pilots and drivers of ground support vehicles need to pay close attention while traveling in these areas.

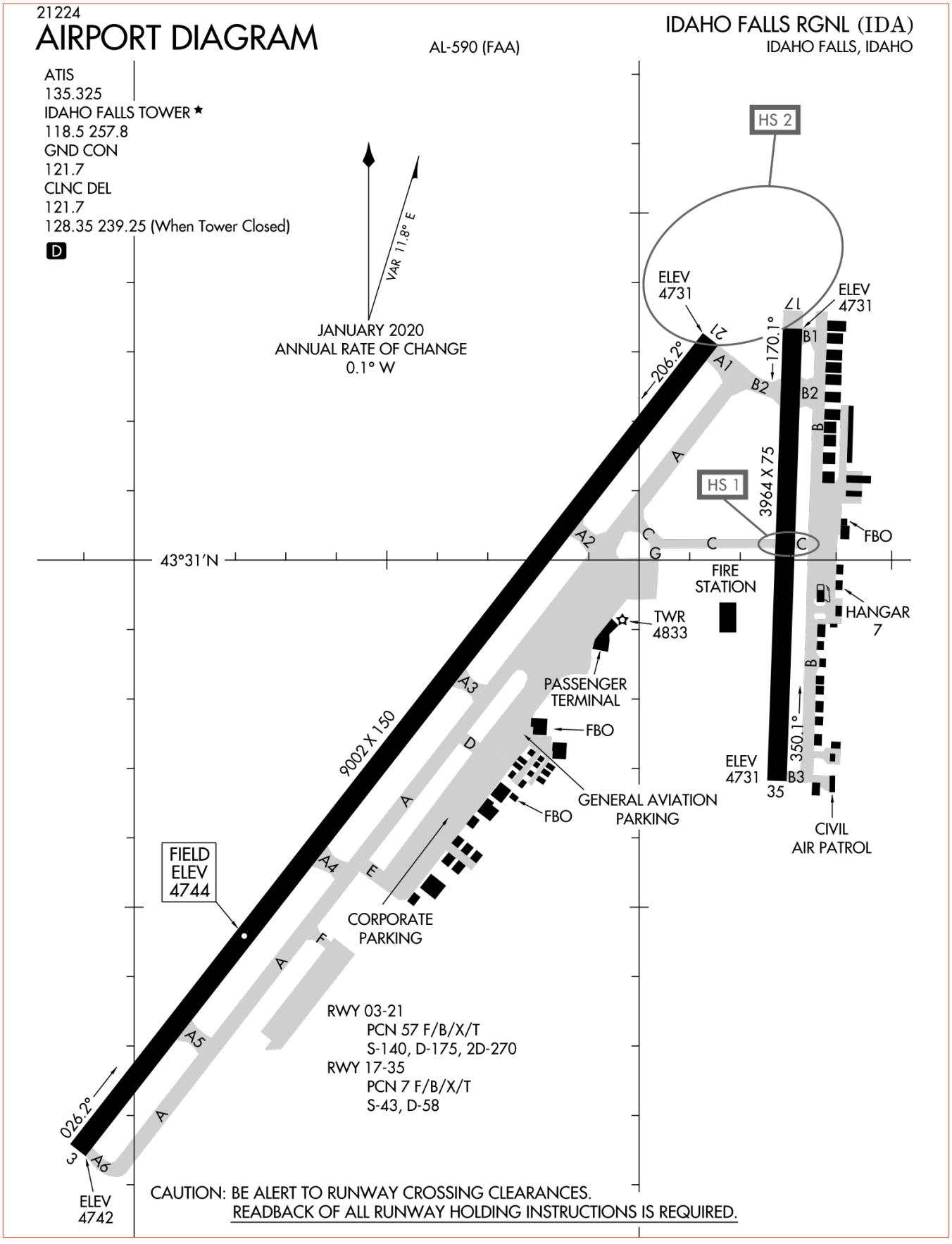
As shown in Figure 4.27, there are two hot spots, identified as HS 1 and HS 2, that are noted in the Chart Supplement for IDA. HS 1 is the intersection of Taxiway C and Runway 17/35. According to the Chart Supplement, pilots should use caution and look carefully for the runway hold line when using Taxiway C, as Runway 17/35 does not have runway edge markings and can be mistaken for a taxiway. However, in contradiction to the Chart Supplement, Runway 17/35 does have runway edge markings (Figure 4.26).

HS 2 is in close proximity of the approach ends of Runways 17 and 21. Pilots often line up for Runway 17 when cleared to land on Runway 21.

Figure 4.26: Runway Edge Markings, Runway 17/35

Source: T-O Engineers

Figure 4.27: Hot Spots



Source: FAA

4.6. Navigational Aids and Lighting Systems

IDA is outfitted with multiple types of navigational aids (NAVAIDS) to assist pilots in obtaining the visual environment of the airport and enhance situation awareness.

4.6.1. Instrument Landing System

An instrument landing system (ILS) is a ground-based electronic NAVAID that enables pilots to execute a precision instrument approach procedure to a runway end. It consists of a localizer (LOC), glideslope (GS), and an approach lighting system. The localizer provides horizontal (left/right) guidance along the extended runway centerline, and the glideslope provides vertical (up/down) guidance to the runway touchdown point—typically at a three-degree glide path angle. Approach lights assist the pilot while transitioning from instrument to visual flight when close to the runway. This is in addition to distance measuring equipment (DME) which provides positive distance information to the touchdown point (if collocated with the GS) or another NAVAID listed in the approach procedure.

ILS approaches are categorized into three types of precision approaches based on the equipment at the airport and the experience level of the pilot. Category I approaches provide for approach height above touchdown of not less than 200 feet. Category II approaches provide for approach to a height above touchdown of not less than 100 feet. Category III approaches provide for an approach with no height minimum. Category II and III approaches require special equipment and pilot certification.

Runway 3/21 at IDA is equipped with an ILS that provides for Category I precision or non-precision approaches to Runway 21, and a non-precision approach to Runway 3 by way of a back course localizer. Runway 21 is equipped with a medium intensity approach lighting system with runway alignment indicator lights (MALSR) suited for a Category I approach.

4.6.2. Runway End Identifier Lights

Runway end identifier lights (REILs) are installed at runway ends to provide positive identification of that runway. The system consists of a pair of synchronized flashing lights placed laterally on each side of the runway threshold facing the approach to the runway. Runway 3 at IDA is the only runway equipped with REIL.

4.6.3. Precision Approach Path Indicators

Precision Approach Path Indicator (PAPI) systems aid pilots by providing visual glideslope guidance during landing. They consist of one row of two or four lights located on the left side of the landing runway at the approximate touchdown point. All runways at IDA are equipped with PAPI systems. Runway 17 is equipped with a two-light PAPI and the others have four lights.

4.6.4. Segmented Circle and Wind Cones

A segmented circle helps pilots to identify the aerial traffic pattern when flying under visual flight rules (VFR). Each airport has an established traffic pattern which has been developed to help pilots avoid obstacles like mountains, towers, and other aircraft. Runways 3/21 and 17/35 both have standard left-hand patterns. The segmented circle is typically centrally located on the airfield alongside the airport's primary wind cone. At IDA, they are both located just north of Taxiway C between Runway 17/35 and the approach end of Runway 21. It is lighted at night for improved visibility (Figure 4.28).

Federal regulation (14 CFR Part 139.323) requires commercial service airports to have supplemental wind cones located at the end of each runway available for air carrier use. Runway 3/21 is the only runway at IDA suitable for use by an air carrier. As such, it has supplemental wind cones located at each end.

Figure 4.28: Segmented Circle and Lighted Wind Cone

Source: T-O Engineers

4.6.5. Very High Frequency Omnidirectional Range with Distance Measuring Equipment

A very high frequency omnidirectional range (VOR) is a ground-based NAVAID that is widely used within the National Airspace System (NAS). It is aligned with magnetic north and transmits azimuth information for high and low altitude routes and airport approaches. When the VOR is located alongside distance measuring equipment (DME), it is referred to as a VOR-DME. Together, they transmit both azimuth and distance information to aircraft.

There is a federally-owned VOR-DME located on the airfield between the approach ends of Runways 17 and 21 (Figure 4.29). Its identifier, IDA, is the same as the airport's. The VOR-DME is surrounded by a circular area with a 1,000-foot radius. This area is designated as critical and structures are not permitted.

4.6.6. Airport Beacon

Airport beacons are rotating omni-directional lights mounted on tall towers or structures that indicate the location of the airport. Airport beacons normally operate from dusk until dawn or during the day when the airport is operating under instrument flight rules. In the United States, different types of airports, such as civilian land, water, or military, are represented by specific color combinations of the beacon. At civilian land airports, the beacon alternates between green and white lights. At IDA, the beacon is located atop the ATCT at the passenger terminal. There is also a historic beacon tower located at the east general aviation apron which is no longer in use.

Figure 4.29: Very High Frequency Omnidirectional Range

Source: T-O Engineers

4.6.7. Automated Surface Observing System

An automated surface observing system (ASOS) is a weather sensing suite designed to assist pilots and flight planners by automatically providing up-to-date meteorological observations. These systems, which can have a variety of sensors, typically measure wind direction and speed, cloud ceiling height, visibility, air temperature, precipitation, dew point, barometric pressure, and humidity. An ASOS may be accessible via telephone, online, radio, or local computer terminal. The ASOS at IDA, which is federally owned, is located approximately 1,000 feet west of the approach end of Runway 21 next to the glideslope antenna. It is surrounded by a circular critical area with a 500-foot radius. The wind data collected by this system was used to create the wind roses and wind overlays included in Section 4.1.4. Wind Coverage.

4.6.8. Wind Equipment F-420 Wind System

The wind equipment F-420 (WEF) wind system provides a second source of required wind observations at towered airports. At IDA, the system is in the infield at the intersection of Taxiways A and C. It receives its power from the VOR-DME.

4.6.9. Runway Visual Range System

The runway visual range (RVR) system measures visibility, background luminance, and runway light intensity to determine how far a pilot should be able to see down the runway while taking off or landing. RVR is one of the components used in determining what the ILS minimums will be for each landing category. The RVR system at IDA consists of a single sensor array positioned on the west side of Runway 3/21 located approximately 1,500 feet from the Runway 21 threshold.

4.7. Airport Support Facilities

Support facilities at the airport consist of infrastructure and equipment used for airport maintenance, airfield lighting, access control, emergency response, and snow removal.

4.7.1. Snow and Ice Control

According to 14 CFR Part 139.313, a commercial service airport that is in an area where snow and ice conditions occur must prepare, maintain, and carry out a snow and ice control plan that is approved by the FAA. The plan must include provisions for prompt removal or control of snow, ice, and slush on the movement area; positioning of snow off the movement area to allow clearance for air carrier aircraft; selection and application of authorized materials to control ice and snow while minimizing engine ingestion; timely commencement of snow and ice control operations; and prompt airfield condition reporting to air carriers. FAA AC 150/5220-20A, *Airport Snow and Ice Control Equipment*, provides guidance to assist airport operators with selecting the type and quantity of snow and ice control equipment and with establishing priority areas for snow removal.

In 2010, the airport completed construction of a new 15,000 square foot snow removal equipment (SRE) building (Figure 4.30). It is located on Borah Avenue between the long-term parking lot and the Aero Mark FBO building. In addition, there are two above-ground glycol storage tanks used for deicing aircraft. Both are located at the south end of the terminal apron and are adjacent to the employee parking lot. One belongs to Allegiant and holds 4,000 gallons. The other belongs to SkyWest and holds 6,000 gallons. Application of glycol is performed on the terminal apron.

Figure 4.30: Snow Removal Equipment Facility

Source: T-O Engineers

4.7.2. Aircraft Rescue and Fire Fighting

IDA is an aircraft rescue and fire fighting (ARFF) Index B airport. This determination is made based on there being a minimum of five daily departures of air carrier aircraft measuring at least 90 feet but less than 126 feet in length (i.e., an Airbus 320 or Embraer 175).

As an ARFF Index B facility, the airport must meet **one** of the following two requirements:

- One vehicle capable of carrying at least 500 pounds of sodium based dry chemical, halon 1211, or clean agent and 1,500 gallons of water and the commensurate quantity of aqueous film forming foam (**AFFF**) for foam production.

Or two vehicles:

- One capable of carrying at least 500 pounds of sodium-based dry chemical, halon 1211, or clean agent; or 450 pounds of potassium-based dry chemical and water with a commensurate quantity of AFFF to total 100 gallons for simultaneous dry chemical and foam application.
- One capable of carrying an amount of water and the commensurate quantity of AFFF so the total quantity of water for foam production by both vehicles is at least 1,500 gallons.

According to 14 CFR Part 139.319, at least one ARFF vehicle must reach the midpoint of the farthest runway from its assigned position and begin application of extinguishing agent within three minutes from the time of the alarm. Within four minutes from the time of the alarm, all other ARFF vehicles must reach the same point and begin application of their extinguishing agent.

ARFF, structural fire, and ambulance services are provided by the operations division of the City of Idaho Falls Fire Department. The ARFF station is located on the airport and is just east of the air cargo and rental car facilities at the end of Federal Way. This station, Fire Station 3, serves as both an ARFF station and a municipal station. There are two hospitals in Idaho Falls. Eastern Idaho Regional Medical Center (**EIRMC**) has 318 licensed beds and 399 physicians on staff.[10] Mountain View Hospital has 43 licensed beds.[11]

4.7.3. Fencing and Gates

The airport is fully fenced with a combination of six-foot and eight-foot fencing topped with a triple strand of barbed wire. The fence, which is approximately 5.7 miles long, serves the dual purpose of providing physical security for the airport and helping to prevent wildlife from entering airport property. Access points include 11 automatic vehicle gates and 10 pedestrian gates operated by key pads. There are 14 manual gates locked with pad locks.

4.7.4. Lighting Vault and Emergency Generator

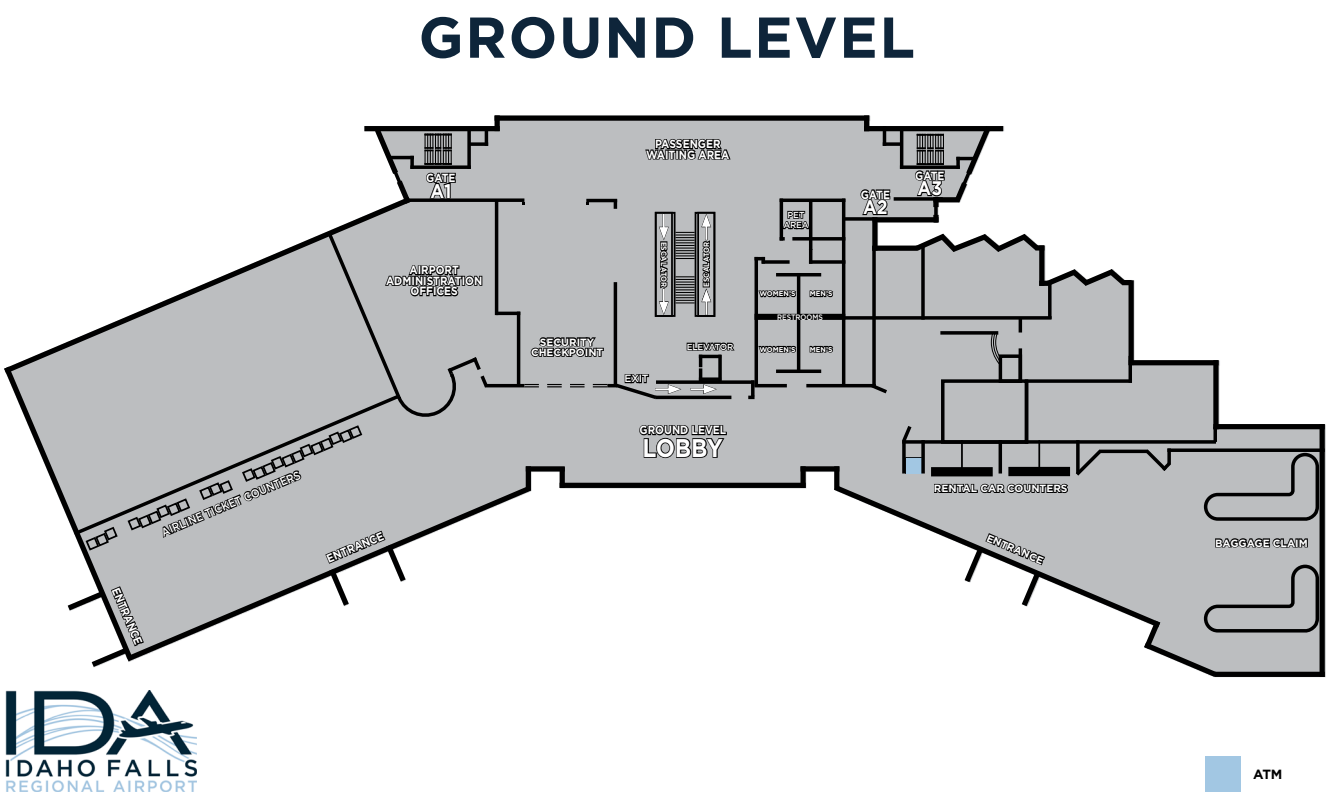
The airfield lighting vault is located inside the commercial terminal. There is also an emergency generator in the concrete structure located at the north end of the commercial terminal building along with a 1,000-gallon, above-ground, diesel fuel storage tank.

4.8. Commercial Terminal

The terminal is located at the end of North Skyline Drive. It was originally constructed in the late 1950s and opened in 1960. It has since gone through many upgrades and expansions. The most recent expansion, which is currently underway, will increase its size to approximately 72,000 square feet. This includes 51,000 square feet that is dedicated to passenger use. These renovations have an estimated completion date of spring 2022.

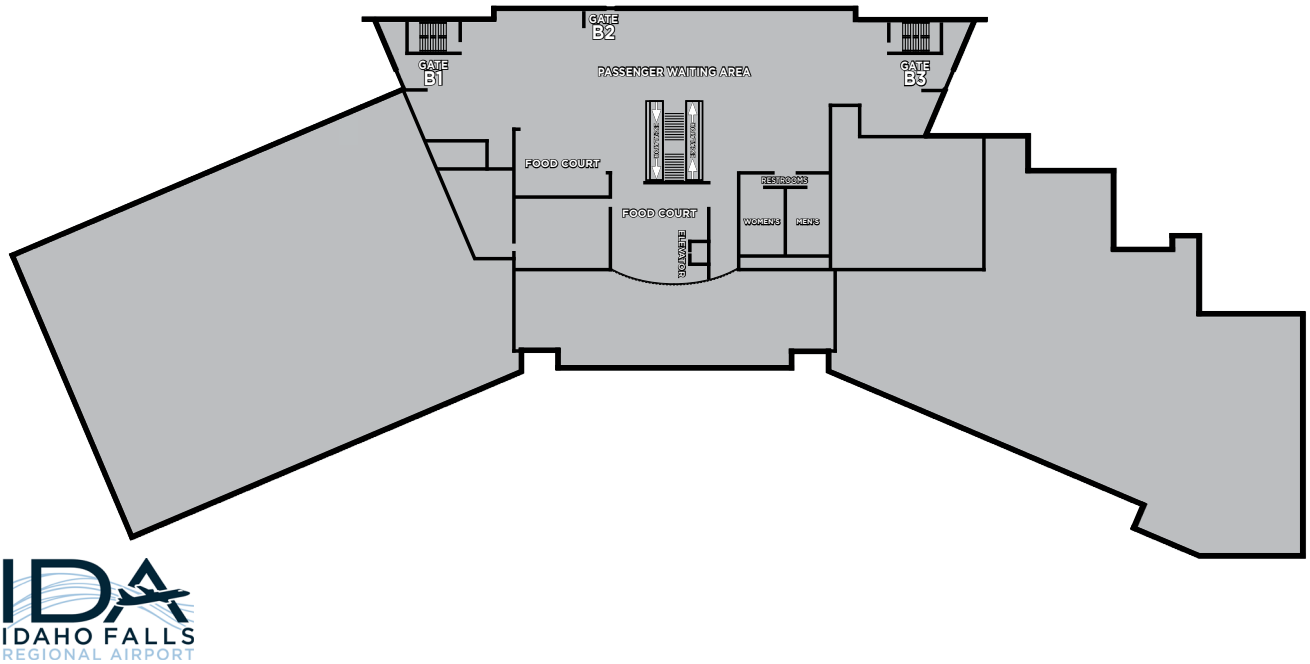
As shown in Figure 4.31 and Figure 4.32, the terminal is a two-story structure. There are three passenger gates on the first floor with covered walkways that allow passengers all-weather access when boarding and disembarking aircraft. There are also three passenger gates on the second floor with jet bridges that extend from the terminal gate to the aircraft.

Figure 4.31: Terminal Map, Ground Level



Source: T-O Engineers

Figure 4.32: Terminal Map, Upper Level



Source: T-O Engineers

Passenger processing occurs on the first floor. This includes curbside drop-off (Figure 4.33) and pick up (Figure 4.34) as well as airline ticketing, security screening (Figure 4.35), baggage claim, and car rental check out.

Figure 4.33: Departure Curbside

Source: T-O Engineers

The airport administration offices are also on the first floor and are located behind the passenger access areas. This includes office space used by law enforcement, the Transportation Security Administration (TSA), and the airlines.

Figure 4.34: Arrival Curbside

Source: T-O Engineers

Figure 4.35: Security Screening Area

Source: T-O Engineers

The airline ticket counters are located in the south wing of the first floor near the airline and airport administration offices (Figure 4.36). As of July 2021, there are five airlines operating at IDA with nonstop service to 11 destinations. As shown in Table 4.11, three of these are currently seasonal routes.

Figure 4.36: Airline Ticket Counters

Source: T-O Engineers

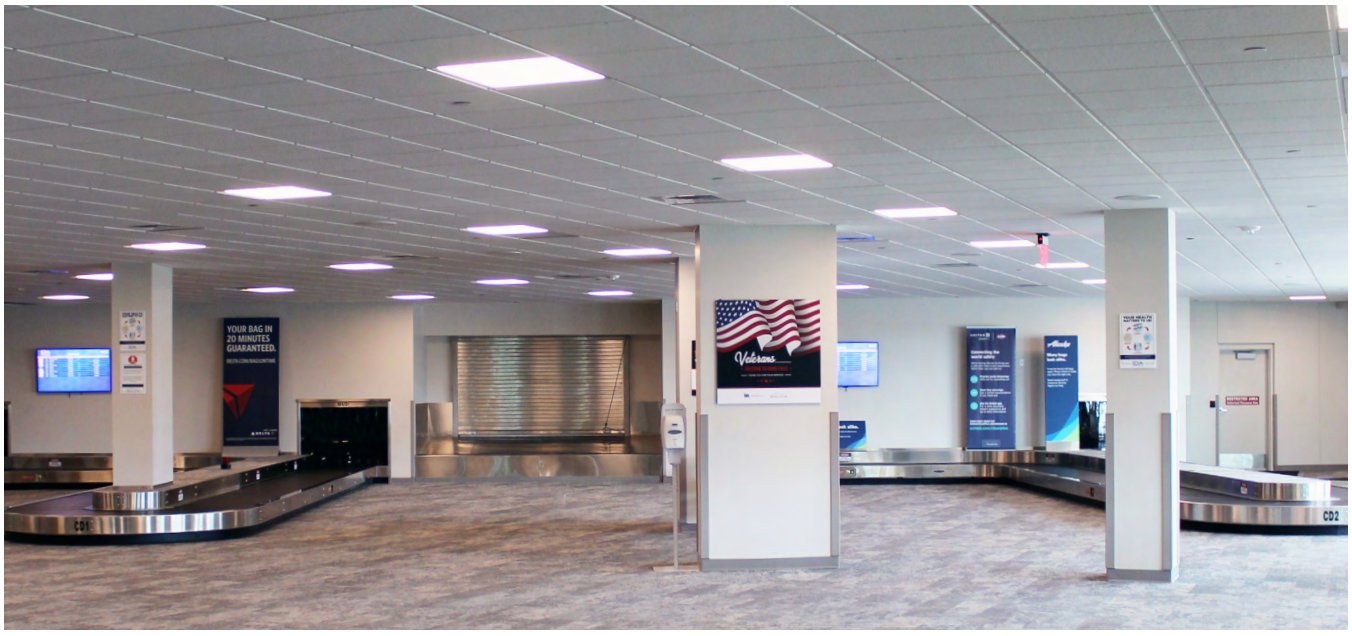
Table 4.11: Airline Service

Airline	Destination	Aircraft	ARC
Alaska (Horizon)	Seattle (SEA)	Q400	B-III
Allegiant	Las Vegas (LAS)	A319 & A320	C-III
Allegiant	Los Angeles (LAX)*	A319 & A320	C-III
Allegiant	Oakland/San Francisco (OAK)*	A319 & A320	C-III
Allegiant	Phoenix/Mesa (AZA)	A319 & A320	C-III
Allegiant	Portland (PDX)	A319 & A320	C-III
Allegiant	San Diego (SAN)*	A319 & A320	C-III
American (SkyWest)	Dallas/Fort Worth (DFW)	CRJ700	C-II
American (SkyWest)	Phoenix (PHX)	CRJ700	C-II
Delta (SkyWest)	Salt Lake City (SLC)	CRJ200 & CRJ700	C-II
United (SkyWest)	Denver (DEN)	CRJ200 & E175	C-II & C-III

*Seasonal
Source: Idaho Falls Regional Airport

The baggage claim area (Figure 4.37) and the car rental counters (Figure 4.38) are both located in the north wing of the first floor of the terminal. There are six rental car agencies at IDA which include Alamo, Avis, Budget, Enterprise, Hertz, and National.

Figure 4.37: Baggage Claim



Source: T-O Engineers

Figure 4.38: Rental Car Services

Source: T-O Engineers

There are passenger waiting areas located at the passenger gates for each floor. The waiting area located on the first floor is shown in Figure 4.39.

Figure 4.39: First Floor Passenger Waiting Area

Source: T-O Engineers

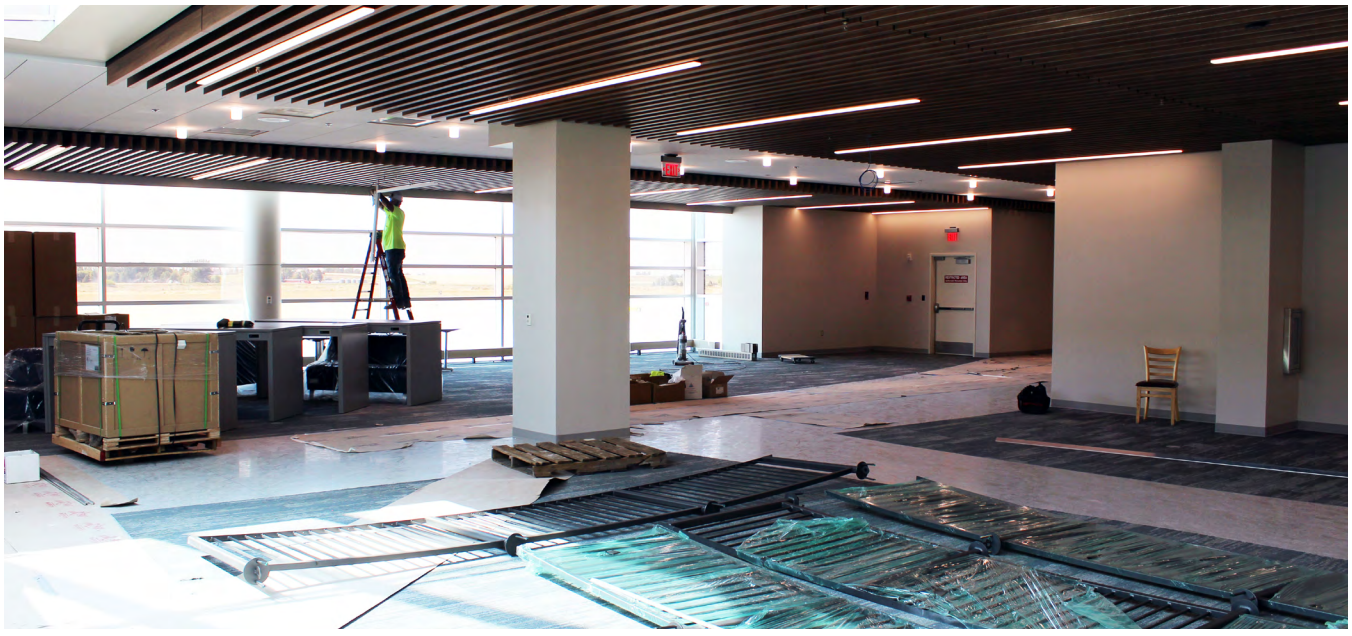
Passenger amenities in the terminal waiting areas include a restaurant, food court, restrooms, a pet relief area, an ATM, free Wi-Fi, and electronic charging stations. The majority of the concessions are closed during the terminal renovations. The temporary concession stand is shown in Figure 4.40.

Figure 4.40: Terminal Amenities

Source: T-O Engineers

The terminal renovations, which are shown in Figure 4.41, have an estimated completion date of spring 2022.

Figure 4.41: Terminal Renovations in Progress



Source: T-O Engineers

4.9. Commercial Terminal Parking Areas

Parking for the terminal is separated into short-term hourly, short-term daily, and long-term parking. These lots are all accessed via North Skyline Drive (Figure 4.42). The short-term parking lot has approximately 435 spaces and the long-term parking lot has approximately 478 spaces for a combined total of 913 spaces. Parking services are managed under contract by SP Plus Corporation (SP+).

The employee parking lot, which is located south of the terminal between North Skyline Drive and the terminal apron, has approximately 72 parking spaces. This lot is accessed via Borah Avenue.

Figure 4.42: Parking Signage

Source: T-O Engineers

4.10. Car Rental Parking Facilities

The car rental parking lots are located just outside the terminal building and are adjacent to the north parking apron next to the air cargo facility.[4] The total parking area is approximately 3.5 acres in size, and most of this space is used as a staging area for the rental fleet.

Enterprise uses a large vehicle washing building which is located to the south of the cargo facility. It can be accessed via Federal Way, Skyline Drive, or the rental car staging area. Hertz and Avis/Budget have their own wash stations in their respective areas within the staging area.

4. The north parking apron is currently being used as an equipment staging area.

4.11. Fixed Base Operator

A fixed base operator (FBO) is a business that operates at an airport and provides a wide range of services to the flying public. Typically, these services are aimed at general aviation customers and include aircraft fueling, parking, servicing, charter flights, aircraft rentals, maintenance, hangar rentals, flight instruction, pilot lounge, conference room facilities, car rental arrangements, and more.

Aero Mark, which is the only FBO at the airport, has three on-site locations. The two main buildings are located at the FBO apron with the primary building situated near the apron midpoint, and the other building is located at the north end of the apron just west of the snow removal equipment building (Figure 4.43). Aero Mark also operates a third location out of the Red Baron Hangar located at the east general aviation area. While the FBO serves the majority of its customers from one of the two main buildings, this third location mainly caters to local GA customers.

Figure 4.43: FBO Building

Source: T-O Engineers

4.12. East General Aviation Area and Airport Historic District

The east general aviation area, which is located east of Runway 17/35 and Taxiway B, is accessed from Foote Drive. The Idaho Falls Airport Historic District, which consists of the Red Baron Hangar (Figure 4.44), caretaker's cabin, and beacon tower, is located here. Together, these historically significant buildings are rare surviving examples of the 1930s pioneering era of aviation.

The remainder of the east general aviation area extends north and south of the historic district along the full length of Taxiway B and Runway 17/35. There is a self-serve fuel island at the south end of the main parking apron, as well as a compass calibration pad (Figure 4.45). As shown in Figure 4.46, there are 45 hangar structures of various sizes.

Figure 4.44: Historic Red Baron Hangar

Source: T-O Engineers

4.13. Non-Aeronautical Areas

There are numerous non-aeronautical uses within the IDA property. Some directly support aeronautical uses, such as car rental facilities, while others provide the airport with additional sources of revenue through leases and use agreements. It is important to note that the airport flight areas cannot be directly accessed from these non-aeronautical use areas.

Figure 4.45: East General Aviation Apron and Compass Rose

Source: T-O Engineers

Figure 4.46: Hangars

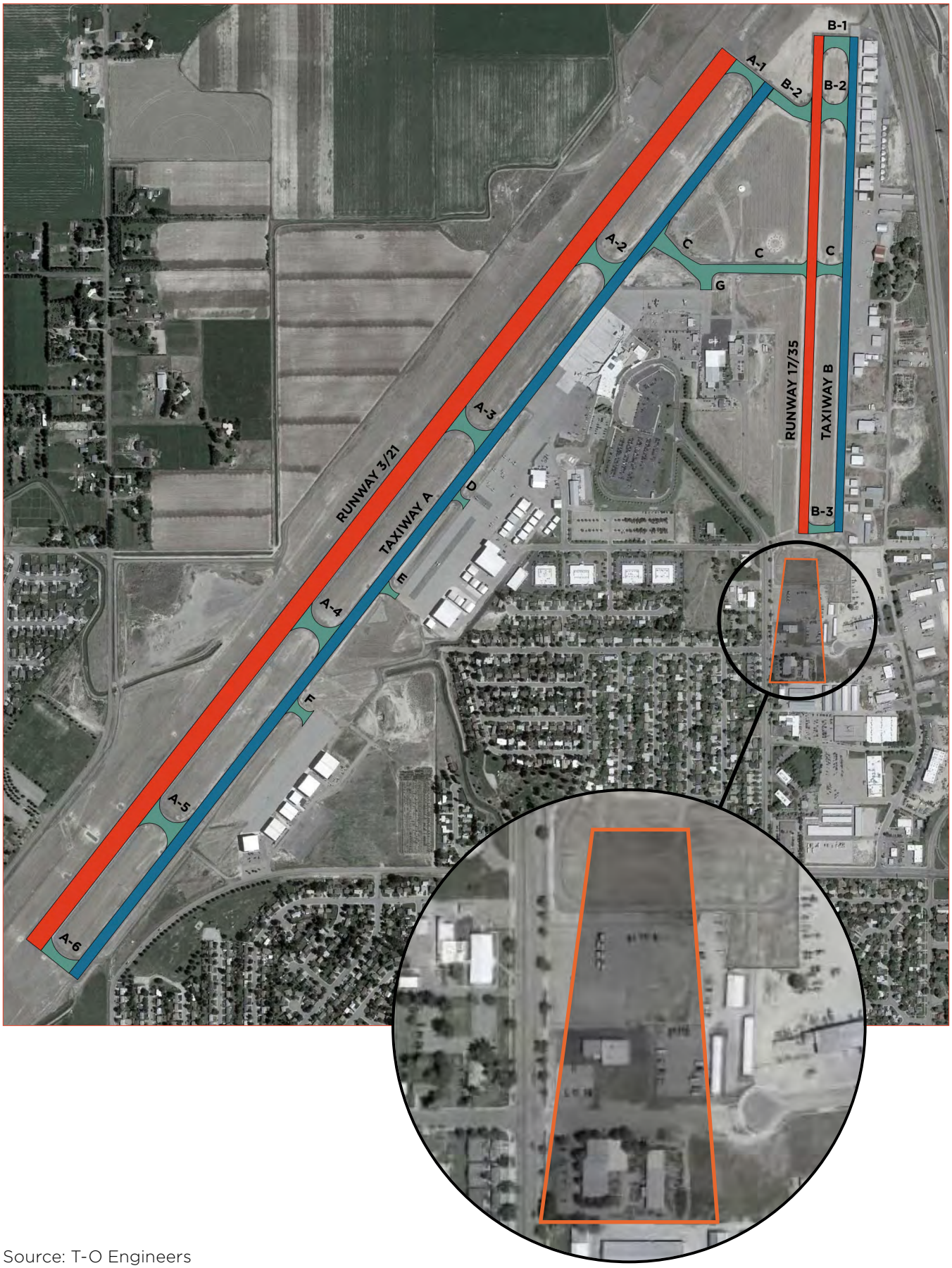
Source: T-O Engineers

Non-aeronautical uses at IDA include the Old Butte Park and Soccer Complex, the Idaho Falls Dog Park, the Snake River Animal Shelter, railroad tracks, a community garden, farming, a storage facility, an air resources laboratory, and a parking lot used by people employed at an off-site commercial complex. There is also an educational software company located on airport property just east of this parking lot (Figure 4.47). In addition, there is an industrial park located to the south of the Runway 35-end. As shown in Figure 4.48, portions of this complex are within the runway protection zone (RPZ) for Runway 35.

Figure 4.47: Commercial Building

Source: T-O Engineers

Figure 4.48: Runway 35 Runway Protection Zone



Source: T-O Engineers

4.14. Utilities

The airport is served by common utilities including water, sewer, communications, power, and gas. Idaho Falls Fiber provides internet services to the city offices located in the terminal building, and, by extension, this includes telephone service because the city uses voice over internet protocol (VoIP). Each of the tenants located within the terminal building (e.g., airlines and car rental agencies) use their own internet service providers. The public Wi-Fi service is provided by Silver Star Communications. Electricity is provided by Idaho Falls Power, and natural gas is provided by Intermountain Gas Company. The terminal cooling system is electric, and the heating system is a natural gas-powered boiler. Water and sewer service are provided by the City of Idaho Falls via two eight-inch pipes. The terminal apron deicing pad which drains into a separator and then to the sanitary sewer. The airport provides on-site dumpsters for waste management which are then serviced by the City of Idaho Falls Sanitation Department. Stormwater is handled though a series of inlets, swales, and retention basins on the airport property. No stormwater is discharged off-airport.

Endnotes

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